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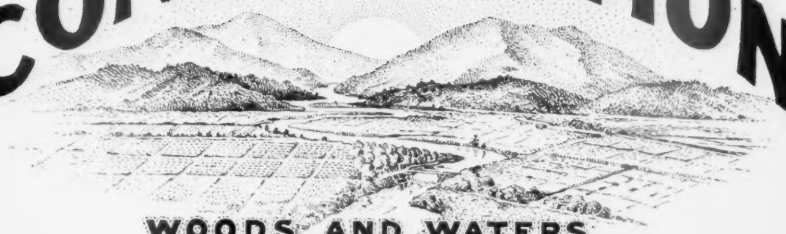
JANUARY 1909 Vol. XV, No. 1

CONSERVATION



WOODS AND WATERS
SOILS AND ORES

THE PRESIDENT'S PLAN

"Our precious policy of procrastination, delay, and fitful and partial action, has borne its fruit. Our waterways are deserted, and in return for our vast expenditure we have little or no actual navigation to show. The people are ready for a change. Let us have it, and let us have it at once. If we can pay the cost from current revenues, let us do so. If not, then let us issue bonds."

PRESIDENT ROOSEVELT

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CONSERVATION

OFFICIAL ORGAN OF

THE AMERICAN FORESTRY ASSOCIATION

VOLUME XV—1909

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WASHINGTON, D. C.

GENERAL CROSS REFERENCES

For names of States, see list of States under Conservation, Forestry Associations, Forestry Schools, Private Irrigation, State Work in Forestry, Waterways, and Women's Clubs.
For list of waterways associations and meetings, see Waterways Associations.
For names of separate forestry schools, see Forestry Schools.
For foreign countries, see Foreign Countries, Forests and Forestry in.
For names of different National Forests, see National Forest.
For names of irrigation projects, see Reclamation Service Projects.

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Dear Sir: I hereby signify my desire to become a member of the American Forestry Association. Two Dollars ($2.00) for annual dues are enclosed herewith.

Very truly yours,

Name_____

P. O. Address_____

The American Forestry Association

President—HON. JAMES WILSON
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The American Forestry Association was organized in 1882, and incorporated in January, 1897. It now has over 7,000 members, residents of every State in the Union, Canada and foreign countries. From its origin it has been the tireless friend of the forests.

The object of the Association is to promote the preservation, by wise use, and the extension of the forests of the United States; its means are agitation and education; it seeks to encourage the application of forestry by private owners to forest holdings, large or small; and it favors, especially, the establishment and multiplication of National and State forests, to be administered in the highest interests of all.

The Association seeks as members all who sympathize with its object and methods, and who believe that our natural resources constitute a common heritage, to be used without abusing and administered for the common good. Seeking to conserve our supplies of wood and water, the Association appeals especially to wood-producers and users, including owners of wood lands, lumbermen, foresters, railroad men, and engineers; and to those dependent upon equable stream flow, as manufacturers, irrigators, employers of water power, and those engaged in internal commerce.

The Association meets annually in Washington. It publishes, monthly, CONSERVATION, the magazine of authority in its special field. The list of contributors to this publication includes practically all persons prominent in forest work in the United States, making it alone worth the cost of Annual Membership in the Association.

The dues, covering a subscription to CONSERVATION, are as follows: Annual—For Annual Members, $2; for Sustaining Members, $25; Total, with exemption from all other payments—for Life Members, $100; for Patrons, $1,000, and of the above amount, $1 is set aside each year to pay the subscription of each member to CONSERVATION.

OTTO LUEBKERT, Acting Secretary,
The American Forestry Association.

CONSERVATION

OFFICIAL MAGAZINE
OF THE
AMERICAN FORESTRY ASSOCIATION

FRANK GLOVER HEATON, *Editor*

CONTENTS FOR JANUARY, 1909

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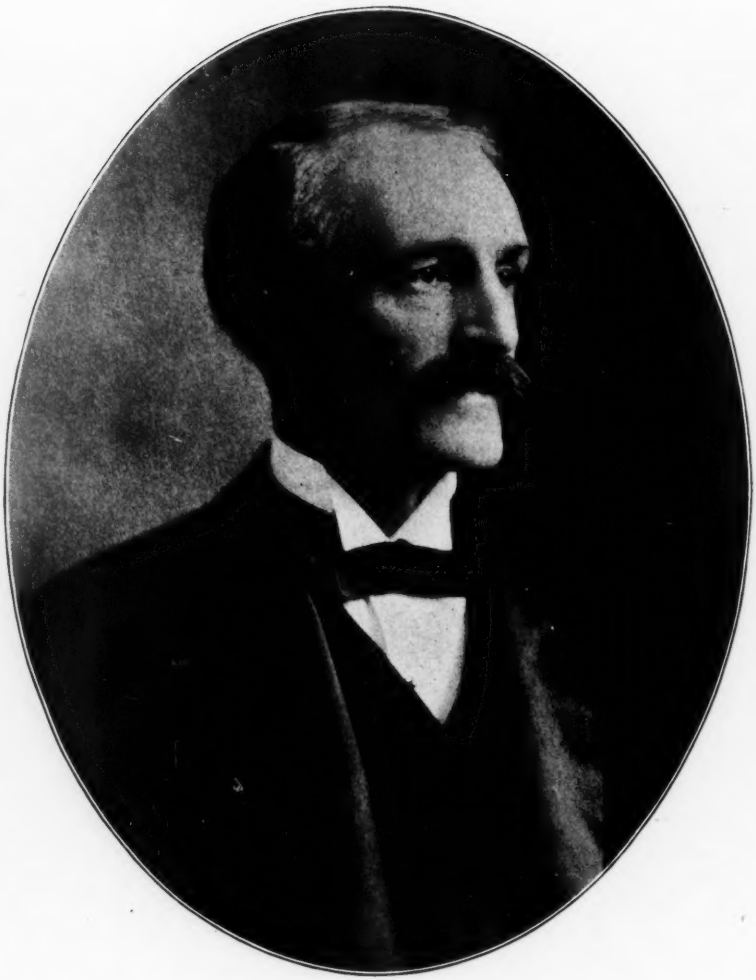


HON. GIFFORD PINCHOT, CHIEF FORESTER

Secretary of the National Conservation Commission, and Chairman of the Joint Conservation Conference

Vol. XV JANUARY, 1909 No. 1

THE JOINT CONSERVATION CONFERENCE

Second Gathering of the Governors in Washington—Report of the Commission Is Received—Notable Assembly and Noteworthy Addresses

IN CONTINUANCE of the work so ably inaugurated at the White House, in Washington, last May, the first gathering of the Joint Conservation Conference—being the Governors of the various States, their advisers, members of State Conservation Commissions, representatives of State and National organizations and others—met in Washington on December 8, 9, and 10. The purpose of the conference was, primarily, to receive the report of the commission appointed last June by President Roosevelt; which commission has been at work since its appointment, preparing an inventory of the Nation's natural resources.

The sessions of the conference were held in the Red Room of the New Willard Hotel, though the conference was opened with a monster mass meeting at the Belasco Theater. This opening meeting, which was designed to give the initial impetus to the later sessions, was, in a measure, open to the general public—that is, admission tickets were distributed to those who really wanted them. From the size of the audience, its representative character, and the hearty applause that was vouchsafed every telling point made by the several speakers, it is safe to say that very few of those holding tickets failed to use them.

The meeting at the Belasco was presided over by President-to-be William Howard Taft, who was introduced by Chief Forester Gifford Pinchot, acting as temporary chairman. Judge Taft, with few preliminaries, introduced President Roosevelt, the first speaker; and, following the President, Governor Chamberlain, of Oregon, in a deeply interesting paper, placed before the members of the conference, and the invited guests, the case for conservation of natural resources.

Occupying the stage with the chairman and the principal speakers were members of the President's Cabinet, members of the National Conservation Commission, Governors and their associates, and others particularly interested in or identified with the work of

conservation. The audience filled every seat in the beautiful theater, even the upper galleries being crowded; and the interest of those who were in attendance was made unmistakably manifest by the appreciative applause that was of such frequent occurrence and volume as to interrupt the speakers.

In calling the meeting to order, Mr. Pinchot, as temporary chairman, introduced Rev. Edward Everett Hale, the venerable chaplain of the United States Senate, whose invocation was especially appropriate, closing with the Lord's Prayer, audibly joined in by the entire assembly. Mr. Pinchot introduced the permanent chairman, in a brief speech of explanation.

MR. PINCHOT'S OPENING SPEECH

MR. PRESIDENT, ladies and gentlemen: The meeting of the Governors at the White House last May, out of which this joint conference sprang, considered the natural resources of the country as the foundations of our prosperity. The conservation of these resources is clearly necessary for our welfare, as a nation, now and hereafter.

Conservation implies both the development and the protection of resources, the one as much as the other. The idea which underlies it is in harmony with the true spirit of this Nation. It expresses a deep-seated National conviction, latent until it came, that we have inherited from our forefathers both an opportunity for ourselves and a duty to those who come after us. Conservation demands the use of common prudence and common foresight in dealing with the great material resources upon which our present and future welfare depends.

The essence of conservation is the application of common sense to the common problems for the common good.

Conservation is simply obvious and right. Therefore, of all the great movements of our recent history, not one has gained so rapidly in public appreciation and support, and not one has promised such results in securing the greatest good to the greatest number for the longest time.

This Nation has been given three million square miles of the richest, the most varied, and the pleasantest of all continents. That land belongs to us now, just as it has belonged to our forefathers, and as it will belong to our descendants. We have the right to use it and we have the power to impair it. The choice is ours. We cannot avoid it and we cannot delay it. That we shall choose well, this meeting is the best earnest and guarantee.

The history of a nation is written best of all in the progress and happiness of its people. But it is written also in great movements, great occasions and great men. We are gathered here to-day in the furtherance of a great movement on a great occasion and in the presence of great men.

Judge Taft lost no time in presenting to the audience the first speaker of the meeting, President Theodore Roosevelt. The President was compelled at frequent intervals to interrupt his remarks while waiting for the applause to subside, his declaration in favor of a bond issue for internal improvements, if no other course seemed open, apparently meeting with the fullest and heartiest approval of his hearers.

ADDRESS OF PRESIDENT ROOSEVELT

GOVERNORS, Representatives of the States, and of the great national organization, members of the National Conservation Commission, and you men and women, my fellow citizens, I welcome you here, our guests, to Washington and to the work you have gathered to do. No service to the Nation in time of peace could be of greater worth than the work which has brought you together.

In its essence your task is to make the Nation's future as great as its present. That is what the conservation of our resources means. This movement means that we shall not become great in the present at the expense of the future, but we shall provide that we may show ourselves truly great in the present by providing for the greatness of our children's children who are to inherit the land after us.

It is the greatest National task of to-day, and I thank you for making ready to undertake it.

If you do no more than fix the National

attention upon the problem, you will have done well. It augurs well for the future that you are here and it is to the credit of our country that in this matter it should take the lead among the nations of the world. All we are asking, gentlemen, is that the National Government shall proceed as a private business man would, as a matter of course, proceed. He will regularly take account of stock, so that he may know just where he stands. If you find that he does not, that he does not know how his outgo corresponds with his income, you will be afraid to trade with him. The same measures of prudence demanded from him as an individual, the same measures of foresight demanded from him as an individual, are demanded from us as a nation. Unfortunately, nations have been slow to profit by the example of every individual among them who makes a success of his business. The United States is substantially the first nation to prepare to take an inventory of its stock in hand, and it has only begun to do so, in any definite way, within the last few months.

Last May, you, the Governors of the States and Territories, met at the White House to confer with each other and the President, upon the material basis of our National welfare. You united in a memorable declaration, which should hang on the wall of every school, and every citizen who is a voter in the United States in the next generation should know about it. Out of the conference at which the declaration was adopted grew the National Conservation Commission, whose chief duty was, as I have said, to prepare an inventory of the natural resources of our country, those resources which are, in the language of the Governors, the foundation of our prosperity. This report is to be used by the President in transmitting to Congress information as to the state of the Union so far as the natural resources are concerned.

The Commission consists of Senators and Representatives, members of the executive departments, and public-spirited private citizens familiar with particular resources. It is wholly without funds and it has, therefore, depended altogether on the public spirit of its members and the cooperation of the executive departments at Washington and in the several States, especially the scientific and statistical bureaus.

I wish to take this opportunity to express on behalf of the people of this country my profound appreciation of the disinterested work—work so valuable that it could not be paid for adequately and which, as a matter of fact, was not paid for at all—performed by the members in private who have given so lavishly of their best time and thought in forwarding this cause.

Its work has brought these bureaus in closer and more effective cooperation than ever before, and for this reason its results will rank as by far the most useful statement of natural resources ever prepared in any country. Each bureau, without relaxing its regular work, has collected and summarized the results of its past work, and has contributed them to the Commission.

I desire to make special acknowledgment to the men who have so cheerfully and successfully accepted and carried out this additional task. They have rendered a real service to the whole Nation at a cost of great personal sacrifice of time and effort to themselves. And the best of it all was the admirable spirit of cooperation which characterized the whole work.

I am especially glad to welcome the cooperation of the States, through their conservation commissions and otherwise. Without it the great task of perpetuating the National welfare would succeed with difficulty. If States and Nation work for it together, all in their several fields, and all joining heartily where the field is common, we are certain of success in advance.

No right-minded citizen would stop the proper use of our resources; but every good American must realize that National improvidence follows the same course and leads to the same end as personal improvidence, and that needless waste must stop. The time to deride or neglect the statements of experts and teaching of the facts has gone by. The time to act on what we know has now arrived. Common prudence, common sense, and common business principles are applicable to National affairs, just as they are to private affairs, and the time has come to use them in dealing with the foundations of our prosperity.

Now, I do not believe in hysteria or sensationalism—in the press or anywhere else. I would not grow hysterical or sensational in describing our condition; but neither must we allow a false security based on conditions long since passed away to blind us, to prevent us from seeing the facts and applying common sense to the situation they disclose. The purpose of the inventory was to give the facts—not to create an alarm, but to take stock of what we have, and so to lead to the necessary action for its preservation and increase.

Our natural resources are so related that the use of one affects the use of all the others. This is especially true of our waterways. Every man, woman and child within our borders has an interest in them, through navigation, power, irrigation or water supply, or through all four. We have neglected our waterways more than any other natural resources, and we must put an end to that neglect. The Inland Waterways Commission has told us how.

First, let us prepare a comprehensive plan for inland waterways development along the lines pointed out by the Commission. Such a plan must consider every use of the waters; it must put the interest of all the people in advance of any private interests whatsoever.

Now, gentlemen, remember that the way to make the waterway improvement what it must be made is at hand, and let us refuse to pay heed to anything but the great common interest. If you dissipate improvements throughout the country on the ground that each congressional district shall have its share, you would better abandon the project from the beginning. I want you to have a comprehensive plan formulated by a National commission, because I want to see that plan genuinely National in scope, conceived in a spirit that will make it genuinely for the use of the whole Union. That plan must consider every use of the waters and the preparation of that plan should begin at once. We need the plan. We need to have a comprehensive plan; but that does not mean that we should not begin the work now. Begin the plan; but there are certain features of the work which we already know will fit into any right plan that is produced; for these pieces of work, plans have already been approved. Our precious policy of procrastination, delay and fitful and partial action has borne its fruit. Our waterways are deserted, and in return for our vast expenditures we have little or no actual navigation to show. The people are ready for a change. Let us have it, and let us have it at once. If we can pay the cost from current revenues, let us do so. If not, let us issue bonds. I always favor paying out of the current revenue anything that we can possibly pay. I would not on any account go into the business of issuing bonds to pay for anything that was not of a permanent and National good. I hope it will not be necessary here; but this is a great permanent enterprise for a permanent National good, for the permanent National good of our children, and if it is necessary, then it is all right to issue bonds so that the enterprise may go ahead.

The work should be begun at once. Of course, there must not be the slightest recklessness or waste of money. No work whatever should be undertaken that has not been thoroughly examined and fully approved by competent experts. Above all, not one cent should be expended to satisfy special interests, whether of a business or a locality, or to promote any man's political fortunes. This is too large a matter to be handled in such a way. We must approach it from the point of view of the National interest, under the guidance of the wisest experts in engineering, in transportation, and in all the uses of our streams.

Forests and waterways cannot be separated in any successful treatment of either. Forest protection and river development must go hand in hand. The three things which should be done without any further delay are, therefore:

First, to provide for a comprehensive plan of waterway development. Second, to begin at once on work already planned, that will surely fit into the larger plan. Third, to provide amply for forest protection against fire, against reckless cutting, against wanton or reckless destruction of all kinds, and to secure the Appalachian and White Mountain National Forests without delay.

Immediately following the address by the President, Governor Chamberlain, of Oregon, addressed the meeting. While his paper dealt more particularly with waters and waterways and the difficulties in the way of establishing a just and equitable *modus vivendi* in their control as between the Nation and the States, the address, as a whole, was one of the ablest and most thoughtful contributions of the entire conference.

ADDRESS OF GOVERNOR CHAMBERLAIN

ON THE third day of October, 1907, the Inland Waterways Commission, at a meeting on board the steamer Col. A. Mackenzie, the President of the United States being present and presiding, it was decided to call a conference on the general subject of the conservation of the natural resources of the Nation. The Commission thereupon prepared a formal letter to the President, giving their reasons for such conference, and asking him, in case of concurrence in their views, to issue a call for the same. The next day, in a magnificent address delivered by him before the Deep Waterway Convention at Memphis, the President announced his intention to call the conference; and on the 13th day of November he issued invitations to the Governors of the States and Territories to meet at the White House May 13-15, 1908, the conferees to comprise, in addition to the Governors, three advisors to be selected by each, the Senators and Representatives in the Sixtieth Congress, the members of the Inland Waterways Commission, and representatives of certain national organizations dealing with natural resources.

The conference was held at the appointed time and place, and was largely and enthusiastically attended. Later, carrying out the purposes of the conference, the President appointed a National Conservation Commission, organized in four classes to consider the resources of water, forests,

lands and mines, and invited the Governors to appoint State commissions to consider and report upon the condition of the same resources in the several States and Territories. This meeting has been appointed for a conference of the National and State Commissions, in order to assist in devising ways and means for future conservation of the natural resources of the country by appropriate legislation, National and State. The Oregon commission is here to-day represented by the Chairman, Mr. J. N. Teal, with a splendid report on the natural resources of our State, and I presume all the other States will be represented and reported upon.

I have been honored by an invitation to address you on behalf of the Governors, and I have accepted with some reluctance, because I fully understand that the views of the executives of the different States may be so divergent, with respect to the matters to be considered, the topography, climatic conditions and needs of the commonwealths comprising the Union so unlike, that it would be impossible for me to voice their sentiments on a subject of such vast importance to the present and future welfare of the Nation.

We are probably all agreed upon one point. Conservation of the natural resources is necessary to the well-being of our country, the protection of generations yet unborn and the perpetuation of our institutions; and cooperation of State and Federal authorities is essential if we are to accomplish beneficial results. As to the means to be adopted to attain the ends desired we may differ radically. In the outset, therefore, I disclaim an intention to be the mouthpiece of the executives of the different States in the suggestions I may make as to the steps which I believe are essential to bring about the greatest good for the greatest number. It was undoubtedly timely that the Forestry and Reclamation branches of the Federal Government first sounded a warning as to the wanton destruction of the forests and the resultant consequences—fuel famine, soil erosion, flood waters at certain seasons and at others an insufficient supply for domestic, industrial, irrigation and navigation purposes. It is questionable, indeed, if this warning, unsupported in other directions, would have been sufficient to arouse the people to vigorous action. But the distinguished President of the United States, with the energy which has characterized his whole official life, early took up the subject, and on the 14th day of March, 1907, appointed the Inland Waterways Commission, not only to prepare and report upon a comprehensive plan for the improvement and control of the river systems of the United States, but upon the correlated subjects of forests and their conservation, soil erosion, and, generally, upon the control and use of the navigable and other waters of the country for navigation and industrial purposes.

The conclusions reached by the Forestry and Reclamation services were sustained and strengthened by the investigations of the Inland Waterways Commission. All were practically agreed that the navigability of our waterways and the maintenance of uniformity of depth and flow depended upon the tributary supply streams, and these in turn upon the protection of the forests along the watersheds and upper reaches. In other words, that the preservation of the forests, the distribution of water for irrigation, domestic and industrial purposes, its use for the generation of power, light, heat, and the navigability of the rivers, were so correlated and interdependent that the consideration of means for the preservation and protection of one involved consideration of means for the preservation and protection of all.

From the earliest days of the Republic the public lands, agricultural and mineral, arid and semi-arid, the waters on and under the earth, and all the resources of sea and land have been given away with wanton and reckless prodigality, until much that is most valuable and essential to National strength has gone into individual or corporate ownership.

As a result, magnificent resources, that should have remained under government control for the use and enjoyment of the whole people, have been dissipated and uneconomically administered, to the enrichment of the few and the impoverishment of the many. The forests of the country, on the mountains of the headwaters of many of the navigable streams, as well as in the valleys, have been denuded until now the date can almost be named when, if present methods be pursued without reforestation, there must inevitably be a lumber famine with all that such a condition entails; the coal mines are being exhausted, with an ever increasing fuel demand; natural oils and gases are being used extravagantly and wasted wantonly as though the supply were inexhaustible; soil erosion is taking place so rapidly by reason of the destructions of the forests that vast areas of agricultural lands are being washed into the navigable waterways, impairing the navigability of these important avenues of commerce; the increased and increasing demand for iron and steel seriously threatens the exhaustion of the mines; and until now no step has been taken to call a halt to wasteful extravagance or to safeguard to present and future generations the little of these resources that remain. I do not underestimate the creative and inventive genius of our people, but it is no answer to the charge of wasteful extravagance in the use of our magnificent resources to say that substitutes for them all may be found whenever the necessity arives. That is not the history of other countries and of other peoples who have ruthlessly squandered the gifts of a beneficent Providence.

A partial inventory was made and an account of stock taken at the last conference, and it would be out of place at this time to indulge in detail, because the National and State Conservation Commissions are now engaged in making a complete inventory of all natural resources.

The question, it seems to me, which ought to engage the attention of the present conference is, what policy ought to be adopted for the future with respect to the conservation of the natural resources of the country.

One of two policies must be adopted in order to succeed—and that policy must be either National, or State.

Whatever policy is adopted must be entered upon with a vigorous determination, a strong hand and under intelligent direction.

And first as to a National policy:

As to the authority and jurisdiction of the Federal government over the undisposed-of portions of the public domain, there can be no question. There the power of Congress is unquestionably supreme with respect to the soil, the mine, the forest and the streams tributary to the navigable waterways and their use, certainly insofar as such use might interfere with navigation.

Again, the Federal government, under the interstate clause of the Constitution, has jurisdiction over the navigable waterways of the country. About this, too, there can be no question.

In the exercise of jurisdiction over the navigable waterways, how far can Congress or the courts go in the matter of the control of streams which, though non-navigable, are nevertheless tributary to the sources of supply, and so affect the uniformity of the flow of, waters in the navigable highways?

In the case of the United States *v.* Rio Grande Dam and Irrigation Company, 174 U. S., 690, the court discussed this question in connection with the appropriation of water for irrigation and other purposes as affecting the navigability of a river, and in the course of the opinion said:

"Although this power of changing the common law rules as to streams within its domain undoubtedly belongs to each State, yet two limitations must be recognized;

"First, that in the absence of specific authority from Congress, a State cannot, by its legislation, destroy the right of the United States, as the owner of lands bordering on a stream, to the continued flow of its waters; so far at least as may be necessary for the beneficial uses of the government property.

"Second, that it is limited by the superior powers of the general government to secure the uninterrupted navigability of all navigable streams within the limits of the United States. In other words, the jurisdiction of the general government over interstate commerce and its natural highways vest in that government the right to take all needed measures to preserve the navigability of the navigable water-courses of the country, even against any State action. It is true, there have been frequent decisions recognizing the powers of the State, in the absence of Congressional legislation, to assume control of navigable waters within its limits to the extent of creating dams, booms, bridges and other matters which operate as obstructions to navigability. The power of the State to thus legislate for the interests of its own citizens is conceded, and until in some way Congress asserts its superior power, and the necessity of preserving the general interests of the people of all the States, it is assumed that State action, although involving temporarily an obstruction to free navigability of a stream, is not subject to challenge."

And again in the same case the court said:

"It does not follow that the courts would be justified in sustaining any proceeding by the Attorney General to restrain any appropriation of the upper waters of a navigable stream. The question is always one of *fact*, whether such appropriation substantially interferes with the navigable capacity within the limits where navigation is a recognized fact. In the course of the argument this suggestion was made, and it seems to us not unworthy of note, as illustrating this thought.

"The Hudson River runs within the limits of the State of New York. It is a navigable stream and a part of the navigable waters of the United States, so far at least as from Albany southward. One of the streams which flows into it and contributes to the volume of its waters is the Croton River, a non-navigable stream. Its waters are taken by the State of New York for domestic uses in the City of New York. Unquestionably the State of New York has a right to appropriate its waters, and the United States may not question such appropriation, unless thereby the navigability of the Hudson be disturbed. On the other hand, if the State of New York should, even at a place above the limits of navigability, by appropriation for any domestic purposes, diminish the volume of waters which flow into the Hudson, a navigable stream, to such an extent as to destroy its navigability, undoubtedly the jurisdiction of the National government would arise and its power to restrain such appropriation be unquestioned; and within the purview of this section it would become the right of the Attorney General to institute proceedings to restrain such appropriation."

Numerous other cases might be cited to show that Congress has not only jurisdiction of the navigable waterways, but over the tributary streams as well, so as to pre-

vent their use to the detriment of the navigability of the rivers they supply, and can even resume control of waters appropriated by a State for domestic purposes, to the destruction of the navigability of a stream.

If this power and jurisdiction be recognized, may it not be insisted, that it is within the powers of Congress to enact a uniform code, not only to safeguard the waters tributary to the navigable waterways against such diversion or obstruction as may destroy navigation, but also to provide for the distribution of such waters for beneficial use in the reclamation of the arid and semi-arid lands of the country? For surely the time will come, if it is not already at hand, when the appropriation and diversion of the waters of many of the non-navigable waters of the country for purposes of irrigation and generation of power for industrial and other purposes, will seriously impair if not destroy the navigability of streams emptying into the Mississippi, the Columbia and other great rivers of the country.

My purpose in this discussion is to call attention to the powers which Congress *unquestionably* has and to others, which in my opinion, it has, as an incident to those expressly granted. If the position assumed is correct, Congress has jurisdiction over many of the most valuable resources of the country, and why may not a law be passed, creating an interstate Conservation Commission, authorizing it to work in connection with the departments of government now having jurisdiction over the public lands, the forests, navigation, reclamation and kindred subjects; making appropriations for the purchase of deforested lands in the Appalachian Range and elsewhere, with authority to reforest them; empowering it to exercise the right of eminent domain, in such cases as might be necessary; authorizing the adoption of rules for the distribution of the waters of all streams tributary to the navigable waterways and particularly those which are interstate?

Such an act would vest in the National government jurisdiction over by far the largest part of the work of resource conservation and would create a central administrative system which would result in great and lasting good and be more effective than any other system.

But it may be asked, Why may not the States exercise the powers herein suggested as likely to be better performed by the National government? To this I answer:

First, the States as a rule do not seem disposed to act for the preservation of their natural resources either with respect to the land owned by them or by the exercise of their police power. There are, however, some notable exceptions to this rule.

Second; even in cases where the States have legislated with reference to the subject of the distribution of waters, whether from interstate or intrastate streams, there is such a lack of uniformity in legislation, as well as in judicial interpretation, that it is difficult, if not impossible, to determine the rights of individual citizens.

It is well known how unpopular was the policy of National Forest creation in its inception in all the States. The range user and the small settler along the edges of the forests had come to feel that they had a right by prescription to use as they saw fit the unsold portion of the public domain. I myself was of the number to oppose the policy, but that opposition was the result of lack of information as to the correlation of water conservation, soil erosion, flood and drouth, and the uniform distribution of waters for reclamation of the semi-arid regions of the West. The movement, I assure you, now meets my hearty approval.

The unpopularity of the Forest Reserve is gradually giving way to acquiescence and approval, and all opposition, I am sure, will vanish when the rules for their administration can assume the order and method of a code, and people come to understand better the objects and purposes underlying it all.

Who doubts for a moment that State effort along these lines would have entirely failed, and that but for the persistent, indomitable, and intelligent effort of Gifford Pinchot, who deserves a very warm place in the hearts of his countrymen, even National effort would have to come to naught?

But the difficulties that beset State control can be better illustrated by reference to the distribution of waters for irrigation purposes, particularly where the rights of citizens of different States along the upper and lower stretches of interstate navigable waters and their tributaries are involved.

To aid in the full enjoyment of these rights, there should be a uniform code governing both the distribution and use of waters, and an administrative system that can reach across State lines and enforce by proper proceedings all rules and regulations.

The National Irrigation Congress, held at Boise, Idaho, in September, 1906, realizing the difficulties in the way of regulating the distribution of waters along such streams, appointed a committee of expert irrigationists to examine into the matter and report to the next Congress. This was done at Sacramento, Cal., the next year, and the committee reported amongst other things as follows:

"If there is to be any protection of priorities across State lines, it should be by a Federal administrative system corresponding in character to that needed for the establishing and protection of rights within a State.

"While it is true in the administration of water rights upon interstate streams by different States, the right of appeal to the Federal courts exists, that remedy is expensive, slow and unsatisfactory. A de-

cision of a court, once rendered, remains fixed and only settles the particular question involved in the case, while conditions surrounding irrigation on either side of the State line are constantly changing and the use of water for irrigation rapidly growing."

While it is true that some of the States have adopted fairly good laws governing the distribution of water for irrigation and other purposes, yet even in these there is a lack of uniformity and a conflict of judicial interpretation. A few instances might serve to show the difficulties of an equitable adjudication of water rights on interstate streams. Bear River begins in Utah, flows into Wyoming, crosses again into Utah, returns to Wyoming, then into Idaho and empties into Great Salt Lake. Lands are being irrigated from its waters in each of the States through which it flows, and each State has a different law.

Lesser Snake River crosses the boundary line between Colorado and Wyoming four times. Adjudications as to the rights of water users in Wyoming are not heeded in Colorado and *vice versa*, and there is no authoritative administrative system.

The Arkansas River is another instance. It rises in the Rocky Mountains, flows for 300 miles in Colorado, crosses into Kansas, traversing it for 310 miles, enters Oklahoma, and empties into the Mississippi on the eastern boundary of Arkansas. A suit was recently instituted by the State of Kansas against the State of Colorado to determine the rights of the citizens of the two States with respect to the waters of this river. It is safe to predict that the final determination in this suit cannot and will not settle finally the rights of all the parties, and some sort of interstate regulation will eventually be necessary.

Other instances might be cited, but these are sufficient to illustrate the difficulty which besets State regulation and control of waters for irrigation and other purposes.

There are again other cases where a stream has its source in one State and its waters are used for irrigation and power purposes in another; the latter State has no power or authority, if the necessity should arise, to go into the former and construct storage reservoirs, no matter how valuable they might be.

I would not for a moment be understood as claiming that Congress has any power, jurisdiction, or authority, to disturb rights to water which have become vested through National or State laws. On the contrary I insist that such rights should be protected and will be promoted by the course here suggested for National control and administration. It is in the interest of these rights, as well as for those yet to accrue, that radical and immediate action should be taken. Who could have foreseen, when the Constitution was adopted, or even a quarter of a century ago, the change that has taken place in the semi-arid regions through the distribution of water? The beginning has only been made, and the prediction may safely be hazarded, that by the construction of dams and storage reservoirs and the enactment of laws for the proper distribution of water for reasonable and beneficial use, hundreds of thousands of acres of land, which to-day are considered worthless, will in the next quarter of a century be reclaimed and will furnish homes for thousands of sturdy men and women. It is to protect the men of the present day and age and their descendants in the enjoyment of their vested rights against the men of the future, and those of the future against the unreasonable demands of the present, that Federal jurisdiction and legislation is here suggested. With the Federal authorities in control of the undisposed-of portions of the public domain in the several States, including the forests within the reserves, and the mines and minerals therein situate, the navigable waterways with their tributary streams, both for controlling their use to maintain a uniform flow for the purposes of navigation, and the distribution of waters for irrigation purposes as an incident to the maintenance of the navigability of the rivers, and in control, as well, of deforested areas owned and to be purchased for reforestation, there is no doubt that a policy of Federal administration can be formulated, that will do more for the preservation and protection of our natural resources than is possible to be done by the States acting separately. But cooperation by the States will still be necessary to accomplish the highest results, and in what I have suggested it is with the idea that such a movement would have the hearty cooperation of the State authorities.

As to the policy of State administration. I have pointed out some of the difficulties in the way of administration on the part of the States, of a portion at least, of our National resources. There is no question but that Federal administration and control would be more effective, and yet I realize that jealousies between the States themselves, and fear of Federal encroachment upon the rights of the States, will make it difficult to agree upon a proper course of legislation. The work in hand is so important, not only to us of the present, but to future generations, that we ought to be able to lay aside all jealousies, and endeavor in a spirit of the loftiest patriotism to reason together and formulate, if possible, a policy of administration that is best for all.

Before the older States realized the value of their forests, their waterways, their mines and minerals, they had allowed all to slip from their hands and into private ownership. The same thing is now going on in the younger States, and soon there will be left nothing to conserve of what we received

from our forefathers as a magnificent heritage. Some course ought to be mapped out now for our future conduct.

If a National administrative system does not meet with approval, then let it be State. The conflicting interests of the States, the different conditions which prevail in the humid and semi-arid regions, in soil, in climate, in topography and finally in laws and judicial interpretation, will render the enactment of a uniform code a task of great difficulty. It cannot be done here and now, but the initial steps may be taken for the appointment of commissioners from the different States to confer together and agree if possible upon a code for submission to the different State legislatures.

But whether the policy for the conservation of our natural resources be National or State, there should be hearty cooperation on the part of both the National and State governments, for without it, all efforts must fail.

To you gentlemen of the East, the North, and the South—to you gentlemen from every section of our country in control of the Federal government, we of the West promise our best efforts in the work of conserving all the natural resources of all these States for the benefit of all the people.

THE CONFERENCE PROPER

Sessions at the New Willard Hotel—Report of the National Conservation Commission—Section of Minerals

ON WEDNESDAY morning, December 8, in the Red Room at the New Willard Hotel, the conference proper began with the reading by Governor Blanchard, of Louisiana, of the report of the National Conservation Commission. This report being a State document, prepared for the President and to be transmitted by him to Congress, of course cannot be published in full. A condensation, however, covering the work of the four sections and giving the principal points contained in the report, has been prepared, and these four summaries are available.

After a brief talk by Senator Newlands, in reference to other matters, Senator Flint was called upon for the report of the Section of Minerals, of which section Hon. John Dalzell is chairman. He prefaced his remarks with the statement that the most impressive fact faced by the Section was the lack of exact knowledge in regard to mineral resources; and he added that this fact emphasized the importance of continuing the Commission in all its branches until a thorough inventory shall have been made of the resources of the country, mineral and others.

Among the startling points brought out in the report is that contained in the statement that the gas that is now escaping from gas and oil wells, and the loss of which is altogether preventable, is sufficient to light all the cities in the United States of over 100,000 inhabitants. Another is the demonstration that the existing and known coal fields of the country contain only sufficient unmined coal to last until the middle of the next century. Of all minerals produced in the United States, one-sixth is wasted, this waste amounting to $1,000,000 a day—$365,000,000 annually. This waste of mineral products is not the only staggering fact developed; the loss of life, through careless, imperfect mining methods, and through a lack of harmony in the laws of the different States and the National Government, is far greater than is true of any other country in the world, where men are engaged in the same lines of work Senator Flint urgently recommended that the strongest sort of resolutions be adopted calling for the enactment and enforcement of laws safeguarding the miners, with the end in view of putting a stop to this awful and wholly needless sacrifice of human lives.

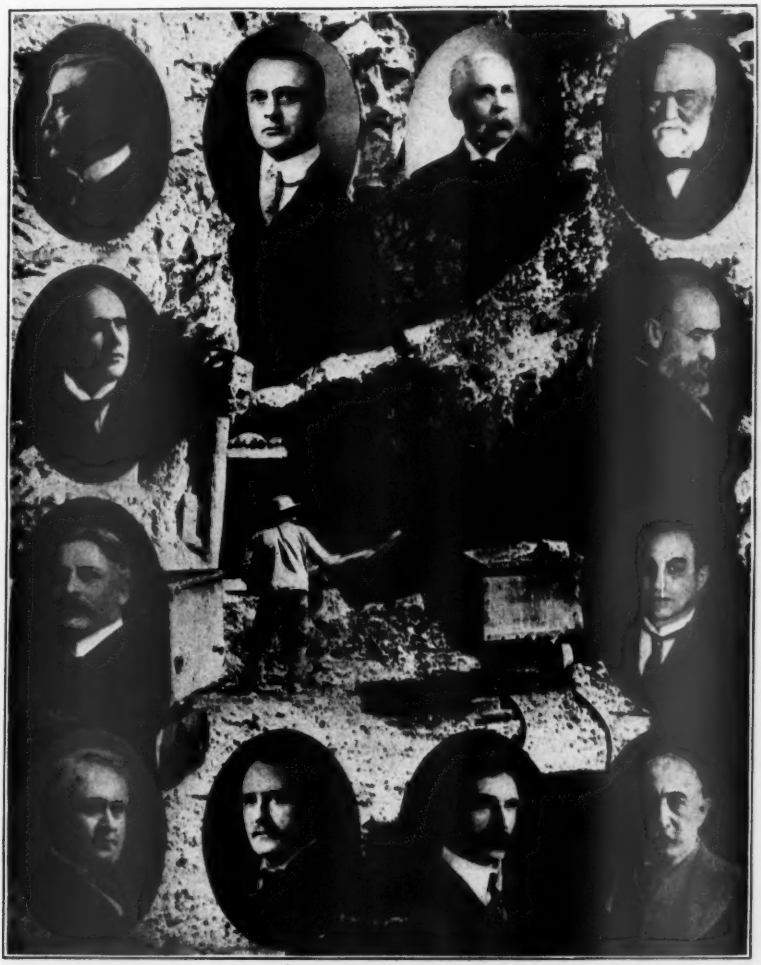
In regard to conditions so far as the country's mining laws are concerned, Senator Flint said:

"We have three different schemes for obtaining title to mineral property: viz., the coal land laws, the lode claim laws, and the placer mining laws. Under the placer mining laws we know of the great frauds committed in taking up timber lands in the West; but at the same time it is difficult to frame a law that will permit placer mining and at the same time not permit the placer miner to own the surface of the ground. In other words, in placer mining as it is in the West, it is necessary to take the surface or we cannot have a placer mine. * * * Our mining laws should be changed so as to permit the taking out of the various minerals, and at the same time hold the ground itself so that it may afterwards be used for farming."

Changes of the laws governing the handling of oil wells and oil lands were recommended; the position was taken that the use of oil as fuel for locomotives and other engines is unnecessary and a needless waste of this mineral resource; the present condition and future prospects as to coal and iron deposits was gone into; the importance of the protection of phosphate rock deposits was urged, and several recommendations were made.

The mineral production of the United States now exceeds $2,000,000,000 in value annually, standing second only to agriculture as a producer of National wealth. The mining industry of the country furnishes our light, heat and power, and supplies sixty-five per cent. of the freight traffic of the country. The annual waste in mining and treating mineral products is more than $300,000,000.

The fuels, supplying heat light and power for domestic and industrial purposes, are the most fundamentally essential resources of the Nation. Use of fuels involves their immediate and complete destruction. The use of large quantities of other materials also increases the rate of consumption of the fuels; for, as the Nation has now passed the stage of early development, the use of fuels is increasing much more rapidly, in proportion to increase of population, than in the past. The available and easily accessible coal supply aggregates approximately 1,463,800,000,000 tons. At the present rate of production—and waste—this supply will have approached exhaustion before the middle of the next century. From the beginning of coal mining in America to the close of the year 1907 there have been mined of all kinds of coal 6,865,000,000 tons, and it is carefully estimated that for every ton of coal taken from the mines one-half a ton has been wasted. The rate of production has been steadily increasing. The initial step in extending the life of the coal supply must be the lessening of the waste in mining, handling, and transportation of the coal. More advanced methods of use



SECTION OF MINERALS

Hon. John Dalzell
Hon. Joseph M. Dixon
Hon. Frank P. Flint
Lee S. Overman

Philo Hall

Dr. I. C. White

James L. Slayden

J. A. Holmes

Andrew Carnegie
Dr. Chas. R. Van Hise
John Mitchell
John Hays Hammond

and better means of transforming the fuel into energy are also to be considered.

The known supply of high-grade iron ore in the United States is approximately 3,840,068,000 tons. At the present rapidly increasing rate of consumption this supply cannot be expected to last beyond the middle of the present century. Should the average of increase be maintained it would require, during the next three decades, the production of about 6,329,000,000 tons. It is evident, therefore, that the Nation faces one of two conclusions; before the year 1940 the production will have reached a maximum and begun to decline, or large use must be made of inferior, low-grade ores, such as are not now classed as available, or the importation of foreign ores must be largely increased.

The known supplies of petroleum, natural gas, and high-grade phosphate rock cannot be expected to last much beyond the middle of the present century.

The waste of natural mineral resources used in building and engineering construction is of three kinds: That due to improper and wasteful methods of mining and preparing for market, that due to excessive use of structural materials, through ignorance of their strength, durability, etc., and that due to destruction by fire on account of the inflammable character of building construction, and inadequate building laws and the non-enforcement thereof.

The greatest source of waste of structural materials, and the one most easily reduced, is that arising from fires. The substitution of fire-resisting materials for those now used will tend largely to put an end to this waste. The fire loss for 1907, including property destroyed maintenance of fire departments, payment of insurance premiums, protective agencies, additional cost of water supplies, etc., reached a total of over $456,485,900, about fifty per cent. of the total value of new building construction in that year. This amount is thirteen times the interest on the total National debt.

After a brief discussion, between the Chair and several delegates, as to the manner in which the full text of the reports is to be placed before the people of the country, Mr. John Hays Hammond, the famous mining engineer, was called on for a statement as to the loss of life in mining operations. Mr. Hammond, however, declined to go into detail on this subject, owing to the fact that he was without statistical information. The general discussion was opened by Prof. J. M. Bogert, President of the American Chemical Society.

ADDRESS OF PROF. J. M. BOGERT

I WILL ask the attention of the conference for about ten minutes to present some details, for all the economic utilization of our resources must finally be worked out by scientists, and I would like to present, on behalf of the chemists, a brief statement as to what assistance you may expect from the chemist and chemistry.

It would be strange indeed if the science which deals with the ultimate constituents of our material universe, their combinations and transformations, could not offer any assistance in the solution of the problem as to how our natural resources may be conserved. It is chemistry that has determined the composition of those materials which make up the earth upon which we live, the atmosphere which surrounds it, the heavenly bodies beyond. Chemistry studies the properties of the elements and their various compounds, and upon these fundamental data our industries rest.

The transformation of the raw material into the finished product consists either in changing its external form, as in wood or metal working, weaving, and the like, or there is involved a chemical change, as in metallurgy, fermentation, the manufacture of glass, soap, cement, chemicals, etc. Practically all of our manufacturing processes are, therefore, primarily either mechanical or chemical. In the production of a metal from its ores, or of indigo from coal tar, it is chemistry that points the way; and the more complex the problem the greater the dependence upon this science. In devising new processes and in the discovery of new and useful products, chemistry is again the pathfinder. The com-

munity is apt to overlook the extent and diversity of the services rendered by the chemist because of the quiet and unobtrusive way in which the work is carried on; and yet the statement in the report of the twelfth census of the United States is quite correct when it says that:

"Probably no science has done so much as chemistry in revealing the hidden possibilities of the wastes and byproducts in manufactures. This science has been the most fruitful agent in the conversion of the refuse of manufacturing operations into products of industrial value. * * * Chemistry is the intelligence department of industry."

The measure of a country's appreciation of the value of chemistry in its material development, and the extent to which it utilizes this science in its industries generally measure quite accurately the industrial progress and prosperity of that country. In no other country in the world has the value of chemistry been so thoroughly understood and appreciated as in Germany. And in no other country of similar size and natural endowment have such remarkable advances in industrial development been recorded; and this, too, with steadily increasing economy in the utilization of the natural resources.

That our own Government realizes the importance of chemistry seems evident from the fact that six of our nine Federal Departments already maintain chemical laboratories, where they handle not only their own chemical work, but also that of the Departments of State, Justice and Postoffice, which as yet have no chemical laboratories.

Coming, then, to our mineral resources, in the first place, let it be kept clearly in mind that metallurgy is a branch of applied chemistry, as it is founded upon chemistry and engineering. In general, it may be said that the seriousness of our mineral problem lies in the fact that these are resources that cannot be renewed. It may be urged that as matter is indestructible, metals once won from their ores should not waste, but accumulate. And this no doubt is partly true. It is not so with our fuels, however, for when our carbon is once burned to carbonic acid it is no longer available as fuel, until by the slow process of vegetable life some of it is fixed in plants and gradually reduced through peat to coal again. Six times as much of our carbon is now locked up in mineral carbonates unavailable for fuel as we have in the form of coal.

The life of our mineral resources may be prolonged by the discovery of new supplies or satisfactory substitutes, by avoiding waste in mining and extracting ores and the discovery of methods which will render low grade or other ores available by a more complete utilization of the latent possibilities of the ore, including the recovery of all by-products, and by preventing loss of life and property from fires and explosions.

The chemist is helping in many of these lines. It is to him that we must usually turn for the production of satisfactory substitutes, for devising new processes, and for the utilization of by-products and wastes. It was the pioneer investigations of Bunsen and De Faure which pointed the way for the use of furnace gases in preheating and in other directions, such, for example, as the recent commercial manufacture of formic and oxalic acids from the carbon monoxide present in generator gas. In smelting operations the chemist must analyze the raw materials—ore, coke, limestone, etc.; the intermediate products—pig iron, if steel is to be made—and the final products, including the furnace gases and slag. Without the explosives of the chemist, modern mining, as well as most great engineering works, would be impossible. After the precious metals have been extracted, it is powder which stands guard over them as it does over all the accumulated wealth and prosperity of this and other nations. On the other hand, a chemist, Sir Humphrey Davy, by his invention of the safety lamp, has done more than anyone else to protect the miners from explosions. It is worth noting that the authorities did not appeal to a chemist until all suggested engineering methods had proven powerless to avert the terrible "firing" of the mines. The new sodium dioxide compound, "oxone," may prove of value in mine accidents, for it absorbs carbonic acid with liberation of oxygen. The oxygen upon which rescuers now depend is also the result of the skill of the chemist.

At one time the waste in the oil business was enormous, as only the kerosene was saved. Now, with the exception of occasional fires and the relatively small amount sprayed into the air with escaping natural gas, and those regions where the oil is wasted by seepage from earth pits, there is very much less lost, for chemistry has not only shown how a greater yield of kerosene may be obtained, but also how the by-products—gas, gasoline, naptha, lubricating oils, paraffin, vaseline, coke and so on—may be saved with considerable financial profit. Certain of these distillates are used for the production of high candle power illumination, as in the Pintsch and Blau gas processes. Rapid development in the use of gasoline engines has developed an enormous demand for this petroleum fraction. The most promising substitutes for gasoline appear to be alcohol and the benzole from by-product coke ovens. The former of these, although giving much higher efficiency as a fuel, is still too expensive to compete with gasoline except in special cases. The latter, as our number of by-product coke ovens increases, is likely to play a more prominent part in this field.

In 1907 over forty million tons of coke, valued at nearly one hundred and twelve million dollars were produced from about sixty-two million tons of coal. Only five and a half million tons of this, or less than fourteen per cent, was obtained in by-product ovens. About fifty-four and a half million tons of coal were coked in bee-hive ovens. This involved a waste of one hundred and forty-eight billion

cubic feet of gas, worth $22,000,000; four hundred and fifty thousand tons of ammonium sulphate, worth a similar amount, and nearly four hundred million gallons of tar, worth $9,000,000. The gases evolved in coke ovens have high calorific power. Dentin estimates that in modern ovens only sixty-five per cent of this is necessary to effect the carbonization. The remaining thirty-five per cent amounts to above 3,700 cubic feet of gas, equivalent to 420,000 calories per ton of coke produced. As a gas engine of 100 kilowatt power absorbs 3,600 calories per kilowatt, the power wasted in bee-hive coking amounts to over 4,000,000,000 kilowatt, or about 3,000,000,000 horse-power. We are, therefore, wasting enough power to establish a great manufacturing center, enough ammonium sulphate to fertilize thousands of acres, enough creosote to preserve our timber, and enough pitch and tar to roof our houses and briquette our slag and waste coal. Lignites have been found to give out not only an excellent yield of gas, but also tar, oils, paraffin and other valuable by-products. It has recently been claimed that one ton of dried peat can be made to yield 162 liters of pure alcohol, and about sixty-six pounds of pure ammonium sulphate.

In 1907 4,000,000 tons of coal were consumed in the production of 34,000,000,000 cubic feet of coal gas for heating and illumination, worth $36,000,000, in addition to over 100,000,000,000 cubic feet of water and oil gas, worth $90,000,000, or $126,000,000 worth all told.

The value of coal to the consumer depends upon its heating power, the percentage of water it contains, the amount and character of its ash and of the clinker formed, and how extensively it corrodes the grate bars. For an authoritative answer to these and similar questions, the chemist must be consulted.

The composition of furnace and flue gases has been determined by chemical analysis in smelting and other industries, and by the utilization of these gases for preheating and for the generation of power, the amount of coal consumed has been reduced, and in addition valuable by-products recovered. In gas illumination the invention of the Welsbach mantle has greatly increased the amount of light obtainable from a given weight of coal, and has correspondingly reduced the drain upon our coal resources. The conversion of carbon into acetylene through calcium carbide should also be mentioned.

As iron, according to Clarke, composes four and one-half per cent of our lithosphere, the chance of our discovery of other important deposits of iron ore seem far better than in the case of other metals or of coal. The development of iron alloys is a most promising field and among these we may find satisfactory substitutes for other metals now more seriously threatened with exhaustion. The production of ferro-silicon may render available certain siliceous ores hitherto regarded as unworkable.

The chief use of iron is in the construction of railroads and building. In building operations concrete is helping, not only as a substitute for iron and steel, but also as a protective covering for metallic pillars, girders, and the like. The iron and steel industry rests mainly upon chemistry and is under chemical control at every point. The production of steel by the Bessemer process depends upon the combustion of the carbon and silicon of the pig iron, the heat of combustion serving to maintain the mass molten. By the utilization of what was formerly the waste heat of the blast furnaces to raise steam for the blowing engines and preheat the blast, the amount of coal necessary to produce one ton of pig iron is only one-quarter what is was.

The slags are now largely used for the production of cement and concrete, as fireproof packing for steam pipes, and so forth, as ballast for railroad tracks or macadamizing highways, and for building purposes, as slag brick, slag blocks, etc., while those rich in phosphorus, as from the Thomas-Gilchrist process, are extensively employed in fertilizers. In the words of James Douglas, "When all the volatile products of the blast furnaces are deprived of their heat-giving property and their chemical constituents, and when the slags as well as the metal have returned their heat to man instead of to the atmosphere, and the slag itself has been turned into cement or some other useful article, it will be a question as to whether the pig iron is the principal object of manufacture, or one of the by-products."

The safety and comfort of travel on our railroads depends in large measure upon the skill of the chemist in testing the character of the materials employed in their construction and operation. It may be only a delay from a hot box, due perhaps to a poor quality of lubricant, or it may be a disaster from the failure of a signal or headlight at a critical moment, or a breaking of an axle or locomotive part, because of steel brittle from impurities.

Chemistry has played a prominent part in copper metallurgy. The matter is now bessemerized, and seventy per cent of our total product is refined electrolytically. The avoidable waste in mining copper, zinc, lead, silver, and many other metals is estimated as at least thirty per cent. But the value now locked up in the Arizona slags, the Comstock slimes, and the Anaconda tailings, will sooner or later be recovered by chemistry.

Chemistry has finally pointed the way by which aluminum may be obtained cheaply and in large amount from its ores. Last year our consumption of aluminum was 8,500 tons, worth $5,000,000, the world's production for 1907 being estimated at 20,000 tons. The commercial utilization of aluminum and its alloys is writing a new chapter in our mineral history. To appreciate what this development in aluminum means, it should be recalled that the total supply of it is nearly twice as great

as of iron and about 800 times that of copper. Aluminum is already replacing copper for certain electrical purposes. A large part of the power now generated at Niagara Falls is distributed through aluminum castings, for air ship constructions, and for utensils of various kinds. The use of finely divided aluminum in Goldschmidt's "thermit" process of welding and casting is an important application of one of the chemical properties of aluminum.

A good example of the economy accomplished by chemical investigation and discovery is furnished in the case of ultramarine. Many years ago, when this was made by powdering the mineral lapis lazuli, it sold for more than its weight in gold. Now that the chemist has discovered how to make the same material from such cheap substances as kaolin, sodium sulphate and carbonate charcoal, sulphur and rosin, the price is only a few cents per pound.

In the field of the precious metals, chemistry has contributed, among other things, the cyanide and chlorination processes, through which formerly rejected low grade ores and residues have been compelled to give up their gold. The gold production of the world between 1851 and 1907 was three times that produced between 1493 and 1850. The value of our specie, upon which every commercial transaction rests, is determined by the chemists, while the green ink used in printing our bank notes, and to which we owe the name of "greenbacks," was invented by a former president of the American Chemical Society, Dr. T. Sterrey Hunt. The chemist lets nothing escape unsearched. The sweepings from mints and from the shops of workers in precious metals, as well as the water in which the workmen wash their hands, are all made to relinquish the gold or silver they contain. Even waste photographic solutions must disgorge their silver before they are released. The invention of electroplating led to the use of plated articles instead of solid ware, and thus reduced somewhat the drain upon certain of our mineral resources. The supply of platinum has been for years so limited that the price has ranged high. Chemistry has now put on the market vessels of transparent and opaque quartz, which seem likely to replace platinum for some chemical purposes.

Many other instances might be cited where chemistry has made important contributions to the economic utilization of our mineral resources, such as the carbonyl processes of Mond, for example. But there is still much to be done in improving the present wasteful methods of smelting certain of our ores, and we may look for great advances in this direction through the rapidly developing and most promising field of electro-metallurgy.

Of the various factors upon which the success of this conservation movement depends, none, in my estimation, is more important than that of awakening the producer and manufacturer to a proper realization of the value of science to our industries.

Mr. A. W. Damon, Vice-president of the National Board of Fire Underwriters, presented a striking address on fire waste. He suggested that a fifth division, or section, might well have been added to the four into which the Commission was originally divided—a Section of Fire; and he advanced strong arguments for the specific treatment of this branch of the subject of conservation.

Mr. Damon said that the fire loss in the United States for the past four years was $1,257,716,955, or an annual fire loss of over $251,000,000—a daily loss of about $689,160! The four-year period mentioned includes the San Francisco and Baltimore fires; but the annual fire loss for a ten-year period has been $202,793,434, or an average daily loss by fire, for every day of the past ten years, of over half a millon dollars—to be exact, $556,091! Property value destroyed by fire is gone beyond recovery. Insurance only shifts the distribution of the loss; an irrecoverable loss it still remains.

That this loss is altogether needless and unnecessary is proven, Mr. Damon said, by the extraordinary difference between fire losses in European countries and the United States. While the per capita loss in our own country for the past five years has been $3.02 per annum, in European countries it has been only 33 cents per year, or little more than one-tenth as much as our own fire loss. It was shown that nearly five times as many fires occur in cities of the United States as is the case in European cities.

Three principal causes exist, said Mr. Damon, for this excessive difference. First, the difference in the point of view as to responsibility of European peoples and those of the United States; second, the difference in the construction of buildings, both public and private; and, third, the difference in the regulations governing hazards

and hazardous materials and conditions, and in the enforcement of these regulations. The difference in the ideas of thrift; in the view of responsibility to neighbors; in the perception of the real meaning of fire loss or waste, are the causes of the larger numbers of fires per capita in the United States, and, perhaps, of the larger loss per capita.

The organization of which Mr. Damon is vice-president, he said, believes that the present staggering fire waste in this country is a wholly unnecessary National calamity and that to reduce it, it is essential, first, that the public be brought to understand that property destroyed by fire is gone forever and is not replaced by the distribution of insurance, which is merely a tax collected for the purpose; second, that the States severally adopt and *enforce* a uniform building code which shall require a high type of safe construction, essentially following the code of the National Board of Fire Underwriters; third, the adoption by municipalities of rigid ordinances governing the storage and handling of explosives and inflammable materials; fourth, the establishment by the States of the office of Fire Marshal, such Fire Marshal to have the authority to examine under oath and to make arrests; fifth, that all cities maintain a paid, well disciplined, adequately equipped and non-political fire department; and, sixth, that in all cities an adequate water system, with proper distribution and pressure, be installed and maintained, larger cities to have separate high-pressure systems. All these matters appear to be within the province of State legislation, rather than National; but, said Mr. Damon, the adoption by the States, and the subsequent rigid enforcement, of uniform laws on these subjects will go a great way toward ending the Nation's horrifying annual fire loss, which is a National disgrace.

Following the remarks of Mr. Damon, Hon. Thomas F. Walsh, of Washington and Colorado, read an address dealing with conditions affecting mining and minerals.

ADDRESS OF MR. THOMAS F. WALSH

THE object which calls you together—the conserving of our natural resources—is a question which deeply affects our Nation's future. It is the part of wisdom, for nations as well as individuals, to pause and look the field over—take stock, so to speak—and try to see whither we are drifting. This is not only wise as regards our natural resources, but is equally so of all other channels through which wealth is created, and even more so in the sphere of ethics. Thanks to a beneficent Providence, no nation has ever made more rapid progress in the creation of wealth, and what is of greater importance, in the uplifting and bettering of humanity, than the one to which we owe loving allegiance.

In developing and creating our great wealth, it became necessary to call freely upon our natural resources. Prodigal waste went hand in hand with use until their consumption and destruction—for it is a sad fact that we destroy more than we use—became great. Sounding the alarm and submitting the question, to an intelligent and truly representative body like yours, of how to stop waste and conserve these natural resources, was one of the wisest of President Roosevelt's many wise acts.

In reviewing the past we must not forget that conditions have materially changed. Much that we condemn to-day was regarded as lawful and right—of sheer necessity—in years past. As an illustration, take the consumption of timber. The West never could have been settled without railroads. When these railroads were projected they were looked upon as hazardous ventures, and proved so for their promoters in many cases. In the early days of railroad building, the Government gave help in many ways, permitting the use of timber and ties from the forests in their construction. But the end surely justified the means.

The same wise course was followed by the Government in the field of mining. I remember being in Leadville during the winter of 1878-79. The rush to that great camp had commenced. The population increased almost over night from a few hundreds to many thousands. The winter was unusually severe, and as most of the population lived in tents, the death rate from exposure and pneumonia was something appalling. The rush continued until the population increased to 30,000. Shelter had to be provided for this great army of human beings. The magnificent forests that spread for miles in every

direction from the town, even to the mountain slopes, had to be sacrificed to house and shelter them. When comfortable homes were established, the sickness and death rate dropped to normal. Here, as with the railroads, the end justified the means. Leadville has made permanent homes for thousands of our citizens and has enriched the country by hundreds of millions of dollars. It is one of the great productive mining camps of the world to-day. It may be said in passing that if we had had a law in force at that time, similar to the laws of France, requiring the planting of a tree for every one cut down, the restoration of those beautiful forests would be almost complete by this time.

The same wise and liberal policy was extended by our Government in the building of homesteads, villages, and towns on agricultural lands, and in the development of coal and iron mines. The rapid growth and development of our country was in a great measure due to the encouragement and assistance extended to infant industries by our National Government.

We are apt to bewail the great consumption of natural resources, forgetting the magnificent permanent assets which we have to show for it. Trees have been put to better use in sheltering human life; coal and iron has been used in changing our land from desert conditions to teeming industrial and educational activities. Nor should we forget the sturdy pioneers of our civilization and the dangers and difficulties that they had to meet and surmount.

Now, however, the time has come to call a halt on lavish prodigality in giving away the people's inheritance. The time has come to stop giving away the public domain, and to devise ways and means to husband our resources. To this end there are two courses to be pursued: one is arrestation, the other development. These should go hand in hand, for one helps the other. By arrestation I mean the stopping of the terrible wastes that are going on in the mining and using of mineral fuels, and to some extent in other materials.

To preserve public lands for agricultural purposes, for actual settlers, we must stop the awful destruction of forests by fires, and prevent the acquisition of vast tracts by greedy corporations and individuals.

The other course, which I believe we should pursue, is that of development. Development is the greatest of all conservers. It creates and brings new wealth into activity.

The reclamation of the desert wastes, the drainage of miasmatic swamps, and the utilizing of their stored fertility for the support of human life in comfortable independence, are among the highest and best forms of conservation.

Development creates wealth, and wealth distributed to the widest possible extent and wisely used by its possessor, is of the greatest of blessings to a nation.

This development should be carried on by the Government whenever this can judiciously be done. Individuals and corporations should receive encouragement and fair treatment from both the Government and people. Although much has been accomplished in the past, there is much, very much, to be done in the years to come to keep up our established rate of progress, and to meet the pressing needs of our rapidly growing population.

Well directed development will put all of our idle powers to work. It will utilize waters that are now going to waste, and discover and bring new means to light for saving in the consumption of and the husbanding of our resources. If electricity and heat could be drawn from nature's storehouse; if the air we breathe, one of the greatest forces, and one of the most pliant, ductile, and efficient for all the uses of man, could be compressed by and through itself with compensating results—in a word, if nature's materials could be used without waste, these natural blessing would be useful to man in many ways undreamed of until the end of time.

In the sphere of mining there is much that development can accomplished which will lead to conservation. It is only recently that the world has awakened to the facts about the rarer minerals. What little we know of radium leads us to believe that it possesses perpetuality of power, light, and heat. To what extent the production of this miraculous mineral may aid in this conservation is a fascinating field of speculation. The ore, by the way, from which this mineral was first extracted by Madam Curée came from a mine in Colorado, yet no atom of it has ever been produced in this country. The uranium ore that has been, and is now, produced from this same mine is all shipped to Germany.

Vanadium is another of the rare minerals, the development of which will accomplish a wonderful conservation. It is the greatest alloy ever found for the making of steel. Its use will prolong the life of steel to many times what it is now. Here again, because of apathy, ignorance, and the lack of a Governmental institution of guidance, we do not produce one pound of this valuable mineral that would do so much to husband our iron resources.

Gentlemen of the Conservation Commission, a majority of your labors will lie in the field of mining. You will not proceed far before you will find that whilst our good Government has been generous toward all the other great activities of our national life, it has been strangely neglectful toward giving a helping hand to what is in many respects the greatest of all industries.

For instance, in the field of agriculture that grand man who presides over its industries

has linked science to the plow. You will find a young man at the head of the Forestry Bureau who, filled with patriotic devotion, is bringing science and energy to her aid. The Geological, Reclamation, and Weather Bureaus are established on high principles and are rendering great scientific service. This is true of all other departments except that of operative mining, which receives no direct aid of any kind from the National Government.

For development and conservation of our mineral resources two governmental institutes for research are necessary—one for the baser and one for the precious minerals. These should be equipped with every modern appliance and managed by a small, compact force of the best experts and scientists obtainable. These institutes should be located in fields of active mining—one, say, in Pennsylvania and the other in Colorado. They should lead, direct, and instruct in the best methods for saving life, arresting the terrible destruction and waste now going on; they should give reliable data and information for finding and treating new minerals.

The need of such institutes has been forcibly shown recently, when our Government had to borrow scientists from other countries to solve the causes of the terrible explosions in coal mines, with the accompanying horrifying loss of life. You, too, will soon see the need of such institutes to go to in your work for information and advice.

Gentlemen, I have taken up much of your time. I ask you not to throw a blanket of sleepy inactivity over these questions of great National importance. Shut out the lawbreaker and the grafter, but encourage the prospector, the homesteader, and the honest investor. Conserve the people's rights. Be just to the present, but do not forget the future. Stand for the people and make them your allies in accomplishing the good work which you have undertaken.

In closing, let me express my appreciation for the heads of our departments and their assistants. I know many of them intimately, and believe that no government receives more faithful service than ours.

It has become a good deal of a habit for certain classes to hurl criticism at public men and corporations regardless of whether they are trying to do their duty or not. Honesty and dishonesty are often but the reflex of the status of the body politic. It rests with the masses to make your task easier. It is the people who can create public sentiment, which will not only conserve our National resources, but what is more dear to every lover of his country, uplift and improve the standard of that priceless heritage —American citizenship.

The chairman, at the conclusion of Mr. Walsh's address, alluded to the fact that the Governors present "had the right of way, but seemed disinclined to avail themselves of it." He then called upon Gov. John A. Johnson, of Minnesota, for an address on the subject of minerals, Governor Johnson responding with a forceful and interesting speech. He dwelt upon the iron resources of the Mesaba Range, in Minnesota; but, departing from the subject of minerals, he paid particular attention to the subject of forestry and the related subject of waterways.

ADDRESS OF GOVERNOR JOHNSON

I AM at quite a loss to know exactly how to discuss this or any other question identified with this movement. I certainly am not in a position to discuss the matter of mineralogy or mining from a technical standpoint, either as to the matter of its waste, or its chemistry, or any other particular feature of it. If I were to say anything at all it would be to take rather an optimistic view of the situation so far as the matter of iron mining is concerned. It seemed to me, as I listened to the discussions of mining both at this conference and the one held last May at the White House, that probably we got the pessimistic opinion in our heads somehow that within a very short space of time the iron resources of the country are going to be entirely exhausted. I am quite sure that is not exactly the case, and that there is no immediate danger of our running out of iron. I remember in May Mr. Carnegie read a very delightful and very able paper at the White House in which he said that the Lake Superior country or particularly that portion of it located in Minnesota, where they originally believed they had five or six million tons of iron ore, had now, they were quite certain, a billion and a half tons of iron ore. The statisticians who are going to present figures here later during this meeting have now items from the Oliver Iron Mining Company, an institution to which Mr. Carnegie is related in at least a very small way—the Federal Steel Company—estimating, from measurement made through the diamond drill process, that they have two and a half billion tons of ore. If the product has increased a billion tons within a year and the production has decreased from forty-two million tons to twenty-six million tons in the same length of

time in the same territory, it seems to me we are going to have too much iron ore in the future. At least the press so far has put too much iron in the souls of Americans because of some of the conditions which obtain.

I am gratified to be able to bring to you—and I am not here to advertise Minnesota especially—my suggestion that we are sufficiently conceited in Minnesota to think we are going to be able to provide iron for the world for a long time to come. As a matter of news, and not particularly because it is of interest, but because it is germane to some extent to the subject here, we say that a few years ago iron was first discovered in Minnesota. The conditions have been materially or completely changed in the meantime. As a matter of fact, when the Mesaba Range was first opened up, no one thought the commercial ore was of great value, being what they called 60 per cent ore. Then it ran to 55 per cent ore. That is almost the standard now. Even out on the western part of the Mesaba Range, they are mining very profitably 35 per cent ore, because the steel companies understand the conservation of their natural resources. Because of a washing process, they raise the standard of that ore to 50 or 55 per cent for commercial uses.

The great bodies of ore which have been discovered have been made useful by the conservation of their resources. West of the Mesaba Range we are opening what they call the Cayuna Range, and the ore is in very much deeper bodies, not of so high grade, but all new. The most sanguine promoters, if I might use that term, declare that the finding of ore on the Cayuna Range will vastly eclipse the Mesaba Range; so that we have every reason to believe that within a few years we are going to develop sufficient bodies of ore to take care of all needs of this country for the next two hundred years, and as Mr. Cole, the general superintendent of the Oliver Mining Company, said, something like a year ago, when I was talking to him about it, "We have just begun to scratch the earth." I do not say that in a spirit of boastfulness, so far as Minnesota is concerned, or so far as the National Government is concerned. It is a matter of humiliation to me to know that those great iron resources of the country at one time belonged to the Federal Government and later to the government of the State of Minnesota, and by reason of the lack of interest of the people in the conservation and ownership of their natural resources, they have allowed them to pass into the hands of special interests. They are there and they belong not to the National Government, nor to the State of Minnesota, except in small degree. It is very important the National Government and the State government should conserve that which they do own and see to it that it does not pass into the hands of private owners in the future. But it is a matter of humiliation that it has gone as far as it has and into the hands of private parties.

Let me say in behalf, too, of the private individuals who own it, that owning a private enterprise means the conservation of their natural resources. There is no question of the interest of the steel company in the protection and preservation of their own property, and because it is a private enterprise they will look after the details of their business much better and much more closely than State or governmental enterprises are looked after. Because of the things they have done, the Federal Government and the State government too, can learn a very valuable lesson, and that is, in all material things, at least, to conduct their business on the same broad lines of business interest which characterize a successful business man in the conduct of his private affairs. When we have divorced our public business from political considerations—and I was much moved by a remark, I think by the President yesterday, who said that this should not be made the vehicle for the enhancement of any political fortunes—then the situation will be more tolerable. If we will use as a measure of public good, using for our own benefit and our own advantage, the lessons which come to us from successful business men's enterprises, we will do much to conserve our natural resources in that particular direction.

Now, this steel company I have mentioned not only owns mines in Minnesota, but mines in Alabama—and when I speak of Alabama I mean the Birmingham district—and has, by reason of experience, learned to conserve natural resources, and I am quite amused, so far as the iron industry is concerned, to hear people talk about the waste.

In the Mesaba country, as a matter of fact, I want to say it is all open pit mining, not the underground mining. That is still done somewhat on the Vermillion Range, but in the Mesaba Range, the greatest iron range in the world, it is all done by open pit mining, just as you would strip off a quarry or a sand pit and then start to dig the open ore, and there is absolutely no waste to it at all.

I am not going to discuss the matter any further than to say that I do take an optimistic view of the situation.

They say while there are billions of tons of ore, possibly the grade is low. The average grade would probably run 50 per cent in the Mesaba Range. The Krupp works, in Germany, do business with iron which averages 29 per cent, and if they can use the average standard of ore in Germany, and that average is 29 per cent, I think no particular alarm is to be felt about Minnesota ore.

I realize iron is a different proposition from that which we meet with in coal, for instance, because the iron is not, after all, destroyed. It is like some of the other minerals—always with us in some form or other. When coal is consumed, it is gone forever. It is not entirely so with iron ore. We are not particularly alarmed with that particular feature of it in our country. We are interested so far as the development of iron interests is concerned, and the conservation of the natural resources, because the conservation thereof, in my judgment, if it means anything,

means the private development and private exploitation of the industry much along the line suggested by Mr. Walsh.

We say it is kindred to or inter-related with the matter of transportation, and because of the fact that it is so in the middle West, the matter is very important. because with us it is a problem of distribution, rather than a problem of mining, or the value of the thing itself. For that reason, because we are the greatest mining district in the world, because of the fact that we are interested as a mining district, we are interested in this work of an inland waterway and believe that forestry and the inland waterways are kindred and cannot be separated from each other.

I believe the great problem for this conference, and the great problem for the country in the future, is the development of inland waterways. I believe the greatest investment this Nation can make today, bonded or otherwise, is to construct a canal from Lake Superior to the Gulf of Mexico. It may cost $500,000.000. Estimates have been made at $400,000 a mile. A thousand miles would cost $400,000,000, practically the capitalization of a private enterprise such as the Milwaukee or the Northern Pacific, and much less than the capitalization of some of the larger railway systems. This would solve the matter of rate regulation in the interior of the country and would make unnecessary future discussions between sections or political parties as to whether Federal control or State control is best, because then the matter of competition and the matter of reform or better system of transportation would solve that question of itself; and because then, too, we would have a great route of transportation which belonged, not to private enterprises. but which would always be the heritage of the people of this country, not only today, but in the future; and such a canal as I have spoken of, with lateral and spur canals, would have much to do with the conservation, in my judgment, of the fuel. I believe it would pay for itself every fifty years in the matter of the saving of fuel alone, and would pay for itself every ten or twenty years in the reduced cost of transportation to the people.

Minnesota is practically the water shed of the continent. Some of you people who are further South must remember that we start the Mississippi River down your way. We have our streams and our forests and our mines. and all those things up in Minnesota, and we are interested in the conservation of the resources of this country—forests, waters, mines, and so forth.

My own opinion is that proper conservation consists in proper exploitation and proper development, rather than a discontinuation of use, as, for instance, in Sweden, where I believe the amount of iron ore that may be mined is limited to five million tons per year. We want all these things to use as we need them, but we must properly exploit them and properly develop them. If the work is to be done, it must be done scientifically. It has always been my opinion that this problem was not a politician's problem at all. but that it was, after all, an engineer's problem. I realized this morning, as I looked at this conference and as I have watched it from the time I came into this room, that the politician is going to eliminate himself from this conservation work, and that the plodder, the man of whom the President spoke yesterday, using him as a type of man who sits at his typewriter desk and works overtime without any pay or hope of ever getting any, is the man who will have to take the work up.

I remember at the conference last May at the White House all the Governors of the States were there who could be present. Many of their conferees, having met in the White House, were satisfied, and then the politician, having satisfied the public as to himself, and having satisfied himself as to the public, left the work to go to someone else, and there is not that manifestation of interest which was displayed a little while ago; but it is going to grow, just the same. This movement, if I understand it, is bigger than the Government; it is bigger than the conferees; it is bigger than the conference; it is bigger than the Nation itself; and I am of opinion that we will all live to see the day when history will write into its pages the greatest achievement in the record of this Nation's present chief, who made possible the conference last May, and who made possible this conference, because out of it and because of the activity of the scientific men of this country. will come great good for the future of our country.

As I said at the outset, I am not a pessimist, neither am I unduly an optimist. I want to say to you, however, that if you will give us, by canal or otherwise, as good a mode of transportation as Germany has, for instance, we will guarantee to furnish you all the iron that this country wants for at least two hundred years, and you can husband the resources of every other section.

Governor Johnson having finished, the chairman called on Gov. Hoke Smith, of Georgia, whose speech concluded the morning session. The Georgia executive addressed the Conference as follows:

ADDRESS OF GOVERNOR HOKE SMITH

I HAVE felt a deep interest in the purposes of this gathering, and agree with Governor Johnson that among the many good things our President has suggested, perhaps none will last longer or include more broad benefit to the entire country than the organization which is here today.

I can express very strongly my sympathy

with the objects of this organization. It seems to me that great benefit must come from it. I do not understand that your work will be limited merely to the preservation of what we have; certainly not to any effort to retard the use of the resources of our country. That would indeed be objectionable.

We believe that as speedily as possible the resources should be brought into activity. We believe, first, that we should study our resources and that one of the consequences of this gathering and this general movement taking place throughout the entire country, and one of the consequences of the local conservation organizations in each of the States, will be the more complete investigation and comprehension of the possibilities, of a material character, in each of the States; and that we may expect a more complete knowledge in our own country of what there is in each one of the States of the country.

This movement has aroused interest in Georgia, has aroused interest in adjoining States, and we believe that we will rapidly bring into active coöperation quite a large body, not only of experts employed by the States in connection with such work, but the business men, the public-spirited men, the men of prosperity, who desire to know more fully than they know now just what are the possibilities within the soil and within the mountains of our part of the Union.

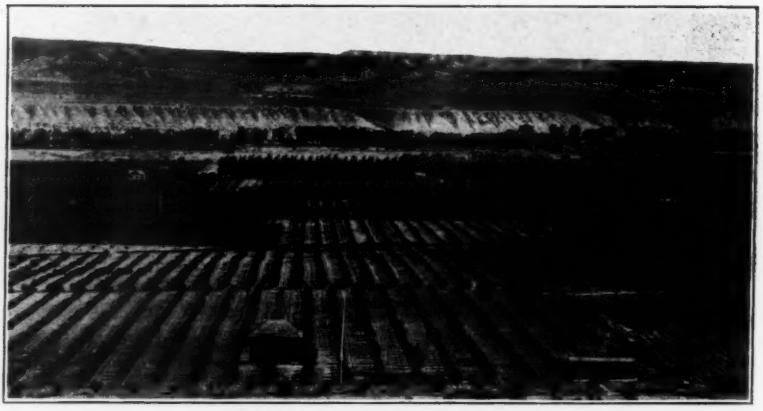
We think that this knowledge of what we have will help to utilize, at each point, in the best possible way, for the end sought to be obtained, those of our mineral wealths and our material resources that should with the least expense and with the best results be used for a particular purpose; that substitutes will be found for some things which we now waste, by using them at greater cost, and when they have larger values. it being at the same time true that less expensive and less valuable material can be substituted with practically the same result.

I do not desire to speak of the special resources of our section. It is not necessary to tell you that our immediate section fixes the price of pig iron the world over. We have vast bodies of iron ore still undeveloped in the State of Georgia. They are not developing rapidly, because over in Alabama they have all the ingredients necessary for the assembling of the various products required to make steel, and they do it a little cheaper than we can, and therefore our beds will wait for future use to a large extent; but we are making great progress in producing that which will act as a substitute, to a large extent, for iron ore. Our development of the utilization of slate and lime for the purpose of turning out cement of a high quality, is in its infancy, and yet already well grown, for plant after plant is being erected, producing vast quantities of Portland cement which must in structural matters largely relieve the pressure upon our iron ore beds.

Assisted by the study of our resources, we will find substitutes for many things now used, less expensive than those now used. We will learn how to use in the best possible way what we have, knowing what we have all over the land, and conservation will come, not from a lessening of activity, but from a quickening of those forces in the best possible way, with the best results, due to the knowledge of what we have, and how to use what we have. After all, it is not the rich field, but the minds of the State that makes the wealth of the Nation.

Along with the progress which will come with the study of our resources and the effort to conserve them, must come the better preparation of the boys and girls of our country to handle in artistic style and with the master's hand whatever either may be called upon to do; and from the simple handling of the hoe in the field up to the highest mechanical skill. it behooves us as a part of the progress for which we all long as a part of the power commercially of our Nation, which we now have and which we would hand down with growing strength from generation to generation, to pay particular attention to this feature. It behooves us to see that every child is taught to use his hand with a perfect skill, and we must neither yield in resources nor in capacity of our skilled artists and mechanics to Germany or to any other country in the world.

And so it is, Mr. Chairman and gentlemen, we come to you from our part of the country—rich, we believe, in resources of the most varied character—anxious, bent upon studying them, bent upon seeing that they are utilized in the most profitable way, not alone for the profit of the one who owns them; not alone for the advancement and the commercial and financial strength of those in the possession of whom they rest, but with the common purpose that our country, our great Nation, today, tomorrow, and hundreds of years hence, shall fill that place which our patriotism and our love assign to it—absolutely the first among the nations of the world.



AFTERNOON SESSION

Section of Lands

SUMMARY OF SECTION REPORT

A LITTLE more than one-fifth of the land area of the United States is under cultivation. The soils of the country, as measured by crop yield per acre, are not losing fertility; taking the country as a whole, nine out of ten counties are either holding their own in this particular, or are gaining in fertility. Those parts of the country that are losing in fertility are mainly in the newly-settled regions, where the farmers are still drawing upon the original fertility of the soil and are not renewing it with fertilizers or practicing crop rotation. The present low average yield per acre is in part due to careless farming, but more generally to the fact that farm land is cheap as compared with farm labor. This is proven by the fact that the highest yields per acre are in the older Northeastern States, where land is relatively high in value, and in the arid regions of the West, where water, the essential, is scarce. The acreage of cultivated lands is increasing much more slowly than the population, and can never be much more than twice what it is now; and the soils are not producing one-half of what they should produce, or what they will be required to produce in the near future, if we would avoid buying our foods elsewhere. An important factor in reducing crops is the loss due to injurious animals and insects, especially the latter. It is estimated that the annual loss to livestock, grains, etc., due to injurious mammals is in excess of $100,000,000. The damage by birds is comparatively slight, and is far outweighed by the beneficent work of the birds in destroying insects, eating weed seeds, etc. The public range lands of the West contain approximately 300,000,000 acres. Upon this range it is estimated that there are at present 50,000,000 head of cattle and 40,000,000 head of sheep. The range is in very bad condition, especially that part used by sheep, owing to over-grazing and trampling. These bad conditions can be remedied by an assumption of control over the range by its owner, the United States, and the apportionment of it to stock-rangers individually. This asset of the country has been misused and wasted almost as criminally as the forests. There are in this country from 75,000,000 to 80,000,000 acres of swamp and overflowed land, nearly all of which can and should be drained and protected, and thus added to our cultivable area. It is estimated that the profit from such operations will be from 100 to 200 per cent over the present value of the lands plus the cost of drainage and protective works.

AT THE opening of the afternoon session the chairman, after announcing the appointment of a Committee on Resolutions, called for an address by Senator Knute Nelson, of Minnesota, chairman of the Section of Lands. The paper aroused deep interest and was heard with marked attention.

ADDRESS OF SENATOR KNUTE NELSON

YOU who were here this morning heard the joint report of the Conservation Commission and the part of it relating to the matter of our public lands. This question of conserving our lands in this country resolves itself really into two different heads. One relates to the conservation of the lands that are now in private ownership, conserving them against soil erosion, and also against improper use or unwise, improper agricultural methods. That part of the problem is very well covered in the special reports that will accompany this general report. This problem relates more to the care-taking by the States than the Federal Government, for the underlying principle in reference to land matters is that where land has passed out of the hands of the Federal Government, the jurisdiction of it is under the laws and regulations of the respective States. So that whatever is done in the way of conserving lands that have passed into private ownership, the problem relating thereto must be in the main worked out under State legislation and through private efforts.

Indirectly the Government can help out in this matter, at least so far as the matter of soil erosion is concerned and so far as the matter of water is concerned, by the regulation of streams; but in respect to wasteful methods of farming and in respect to these other matters that go to the deterioration and diminution of the value of the land for agricultural purposes in the main, that is a problem either for the States or for the individual citizens.

The question to which I propose briefly to call your attention is the conservation of the public lands that are still in the ownership of the Federal Government, and before I state anything on that subject I want to call your attention to what we still own.

According to the latest statistics on this subject, we had, upon the first day of July last, 386,873,787 acres of public land that were unappropriated and in the Government's hands, and not in a State or reservation. We had in addition to that, 6,400,000 acres of land in Indian reservations, and we had 167,976,000 acres in forest reserves. This relates to the lands that we have within the continental boundaries of the United States and does not include the territority or district of Alaska.

The great object or purpose which we ought to have in view is to conserve these lands for the benefit of the American people. One of our great safety-valves in the past, when we have been in the midst of periods of industrial stagnation and paralysis, when we have found a large army of idle men in our industrial centers and our large cities, has been the fact that many of those people who failed to get work in those industrial centers in the large cities could wend their way to the frontier and take up public land and make little homes of their own.

I have figured out that all of the unappropriated public lands which we now have, which are not in forest or Indian reservations, fit for agricultural purposes would amount to 2,292,000 homesteads of 160 acres each. According to the statistics, we had, at the last census, 6,000,000 farms of 146 acres each. If all this public land that is still in a state of reservation could be conserved and utilized for agricultural purposes, it would furnish homes to 2,292,000 homesteaders.

One of the great problems, perhaps the greatest problem, we have on hand today is the utilization of these lands. Fortunately, we have a large body of lands in forest reservations. I think that is one of the most fortunate things that has occurred in recent years in respect to our public lands.

Some years ago we tried to repeal the timber and stone law, under which so many of our valuable timber lands had been appropriated at a cost of not more than $2.50 per acre. While such a bill was passed in one house of Congress, it failed to pass in the other body, and as a consequence, if it had not been for the fact that so many of our lands were segregated and put into forest reservations, we would today have been in a far more deplorable and precarious condition in respect to our timber lands than we really are.

When we think of how our public lands have been disposed of in the past, it is appalling. We began at the outset by selling, aside from filling certain grants to officers and men of the Revolutionary Army and some of our other wars, from our lands, at public sale or auction, auctioning them off in large bodies, and then those lands that were not bid in at public sale were offered afterwards at private sale, and from that usage we got the term of "offered" and the term of "unoffered" land. Offered land was that which had been offered at public sale, and could be always purchased at a price of about $1.25 an acre. Land that had been offered at public sale and not sold, was later sold at any price bid for it.

After we had continued under that policy of selling lands, first at public sale and then offering the lands remaining at private sale, the United States took another step, which was to adopt the preëmption law. That, for the time being, was of great value and assistance to pioneers, because it enabled them to get a brief period in which to raise the money to pay for their land. Originally they could go and occupy land and file a declaratory statement, and have a year in which to pay for the land. Afterwards that was so modified that they could have two and one-half

years, and on surveyed lands the same period after the plats of the survey were returned to the local land office.

In addition to these methods of disposal, we soon got the homestead law, which, in its main provisions, has been one of the great home builders of the country; I mean one of the great instrumentalities that settled up our Western country and, barring some defects in that law, it is one of the best land laws that any country in the world has ever adopted or worked under. The defect of that law was what we call the commutation provision. Originally a settler could enter his homestead, and, after living on it six months, could commute by paying the Government the price; but, in many cases, instead of the man who made the original entry becoming the permanent occupant of the land, the property got into the hands of speculators. The law was subsequently modified so as to permit commutation in fourteen months, and at first the land office interpreted that law to provide that they could commute within eight months after the first six months in which they were required to settle the land. Afterwards the land office abandoned that construction, and today they require fourteen months' actual residence before they can commute.

But even under that provision, today the records will show that a large number of these homesteads are taken and commuted, and as soon as commuted and proved up and paid for, they pass into the hands of speculators and middlemen who hold them simply for a rise and not for the purpose of utilizing them for agricultural purposes.

In addition to that, we have had other laws. They were no doubt designed for a beneficent purpose, but in their practice they worked out unsatisfactorily. We had, years ago, what they called the timber culture law. The object of that was to promote the growth of timber on the prairies of the country, but experience showed that law was almost a failure. In many of the Western States, where they have these timber claims, a few trees were raised, but today on many of those old timber claims you can scarcely find a tree growing. That law was repealed. Afterwards they passed what was known as the timber and stone act, to which I have already referred. That law was no doubt passed for a beneficent purpose, simply for the purpose of permitting the entry of that class of lands that were wholly unsuited for agricultural purposes, and to permit those entries to be made by men who actually wanted the land for their own use. But in recent years that law has been made the vehicle under which the big lumber men have been enabled to secure a lot of land.

Then we had some other laws allowing men to relinquish lands in forests and other reservations, and select new lands in other parts of the country. Years ago Congress passed an act relative to what they called the Mount Ranier Reservation. It was within the limits of the North Pacific grants. A great deal of the land was of very inferior character, with little or no timber on it. Claimants were allowed, under the law, to relinquish that land and select other lands in lieu thereof, and under that law they selected some of the best timber in those Western States.

Under the timber and stone act, the law required in terms that the land should be sold at a minimum price of $2.50 per acre. Until recently, the Land Department has been construing that to mean the maximum price, and the timberland owners or other intermediaries who secured these lands have secured the most valuable pine land for $2.50 per acre. The Land Department has now adopted a new ruling, under which they interpret the law to mean that $2.50 is the minimum price, and that the Government can charge a higher price in proportion to the value of the land. If that rule is enforced, it will be a great protection for us, but in order to enforce that rule the Government, through its officials, will have to investigate and examine these lands, classify them and determine, so far as they can, the quantity of timber, in order to fix the price for which these lands should be sold.

My own notion as to these timber lands—and this is merely my own individual statement—is that all our public lands, whether in the shape of forest reservations or other public lands valuable chiefly for the timber, ought never to be sold, but that the Government ought to retain possession of them, guard them, and simply sell the mature timber from time to time as the necessity arises. That is the only possible way in which we can conserve our timber supply.

Now with reference to these agricultural lands—I call them agricultural lands, but I mean lands not covered with timber. These lands are commonly in the western portion of our country west of the Mississippi, in the arid or semi-arid regions. Some of them can be farmed by dry farming, some by irrigation, and some of them can be farmed by careful and prudent farming by the ordinary method.

I have grown up in two frontier States, first in Wisconsin and then in Minnesota, and I have noticed one thing, and that is the arid belt and frost belt seem to retire in the face of settlement. I can remember twenty-five years ago when the earliest settlers went to Minot, on the Great Northern Railroad, in North Dakota. When the early settlers went there in the first instance they were literally starved out. They all came back into the timber in Minnesota. Within the last fifteen years, settlers have gone in there and have raised crops successfully for the last eight or ten years, and that country is now considered as good for agricultural purposes as any part of the great State of North Dakota. The same thing is true in the matter of frost. I can remember some eighteen or twenty years ago, when our wheat in northern Minnesota and in that territory north of a line through Crookston and Grand Forks, was bitten by the frost before the crop was mature. We

have not had anything of that kind in recent years. Look now at the conditions immediately north of us in Canada. I was up there and visited that country, and to me it appears that both the frost line and the arid lines are driven westward and northward in the face of settlement.

I believe a great deal of this country today, that we have considered utterly useless at one time—useless, at all events, without irrigation—can be farmed successfully by prudent and careful methods.

I noticed as I was passing through that country how those crops which the farmer had out, who had the year before summer fallowed his land, looked much better than other crops. I was told by people in North Dakota that crops raised on summer fallowed land were considered pretty sure crops, while as to the other lands they were not at all sure, on account of drouth and hot winds in the summer.

My idea is that, for the welfare of our people and in order to furnish homes for our future population, we ought to save all this great region that has not yet been taken up under the homestead or other laws. That land should all be saved for homesteads for future generations.

There are plans pending in Congress to make homesteads larger. There have been plans, and they have succeeded in passing a law some years ago applying to certain localities in Nebraska, fixing homesteads at 640 acres. I believe bills are pending in Congress now for 320-acre homesteads. It may be that in one sense a 320- or 640-acre homestead is not too much; but we must bear in mind the amount of land we still possess, and the number of people who will want land in the future, and I think the wisest and safest policy, if we consider our future interests, is to limit our homesteads in all cases to 160 acres.

There is another problem. Of course, where the Government still retains ownership and control of timber lands, the problem can be easily handled by the Federal Government; but when you come to the matter of protecting our timber lands from forest fires and other damage, lands that are in private ownership and within the several States, you will find it to be a problem that pertains to the States and belongs to the police powers of the States. Our recent fire in Minnesota, last fall, where one of the prosperous towns, in what we call the iron range, was totally destroyed, as well as other fires we have had there, all demonstrate that one of the causes of forest fires, that makes them so dangerous, is the refuse that is left by the lumbermen when they do their logging. We think it is entirely within the police power of the respective States, for the protection of lives and the property of their people, to pass a law requiring lumbermen, when they do their logging, to burn up and destroy the refuse and waste matter, just as is now required by the Forest Service of the United States. But we must look to the States for that relief, and all we can do in this convention, my friends, is to give them good, fatherly advice and good sensible suggestions.

I think that the two great problems, or the two important questions, so far as our public lands are concerned, are, first of all, to reserve all our agricultural land simply for homes. In the next place we should reserve our timber lands absolutely in the Government, and sell nothing but the matured timber. In the next place—and I agree with that part of the report—it is well to segregate these different rights. The timber lands should not be sold, agricultural lands should only be sold so far as the surface goes, and the mineral rights should be held separately and disposed of separately. I am free to confess, however, that in respect to that question I have some doubt. I can readily see how, in the matter of coal lands—for instance, the lignite coal lands in Dakota—it is quite practicable to give the surface right to one man and the right to the bed of coal beneath to another man, and how the two men could work in harmony and unity; but when it comes to a matter of mineral claims, such as lode claims and placer claims, then there is some question about working out the problem. As a rule, most of the lode claims are on the mountain tops and mountain sides, and very little of the land covered by those claims is fit for agricultural purposes. The same is true in reference to placer gold mines. They are generally found in the ravines and gulches and beds of rivers—land that as a rule is not of much value for agricultural purposes. So it seems to me there is necessarily no conflict, and in making up this general report I felt perfectly safe in agreeing to the general proposition, and I think the commission has made a wise and judicious recommendation to the people of the United States. Bear in mind, gentlemen, we can only work out this problem completely and thoroughly by the active work of the Federal Government and by the active coöperation of the several States as well as the individuals.

When it comes to this matter of policing our forests that are in private ownership, the great work in reference to that must be left to the States. When it comes to protecting our own forests and controlling them, the Federal Government has absolute power in the matter. When it comes to the regulation of our water supply, the Federal Government has control of all these streams so far as purposes of navigation may be concerned. Governor Chamberlain yesterday, in his speech at the Belasco Theatre, announced, in my opinion, the correct rule.

The correct rule was laid down by the Supreme Court of the United States in the Rio Grande case, and that is that even that portion of a stream which is above the head of navigation, if it be the headwaters of a navigable stream, is nevertheless, on account of its effect upon the navigability of that portion of the stream lower down, absolutely under the control of the Federal Government.

Now, gentlemen, I have in the rough stated

to you how the problem appeals to me. . I can only say to you that as a representative of our Federal Government, here in Congress, I shall aim to the best of my ability to work along the lines suggested by this report, so far as the interests of the Federal Government are concerned; but you Governors and you representatives of the several States have a greater problem even than we have, and we must rely upon you more than upon anyone else to coöperate with us in this very important matter.

I trust that, while we may not all agree as to the details, yet in respect to the great problem in hand, we shall all work together as patriotic American citizens, not only looking to our own immediate welfare, but to the welfare of the generations to come, in order that our country may continue to grow and prosper in the future as it has in the past.

Senator Nelson was followed by Governor Noel, of Mississippi, who spoke on the same subject—lands—also paying considerable attention to the subject of water, and especially the rainfall of the Mississippi Valley and the stream flow of that river. His talk bore largely upon conditions in his own State, though attention was paid to other sections.

ADDRESS OF GOVERNOR NOEL

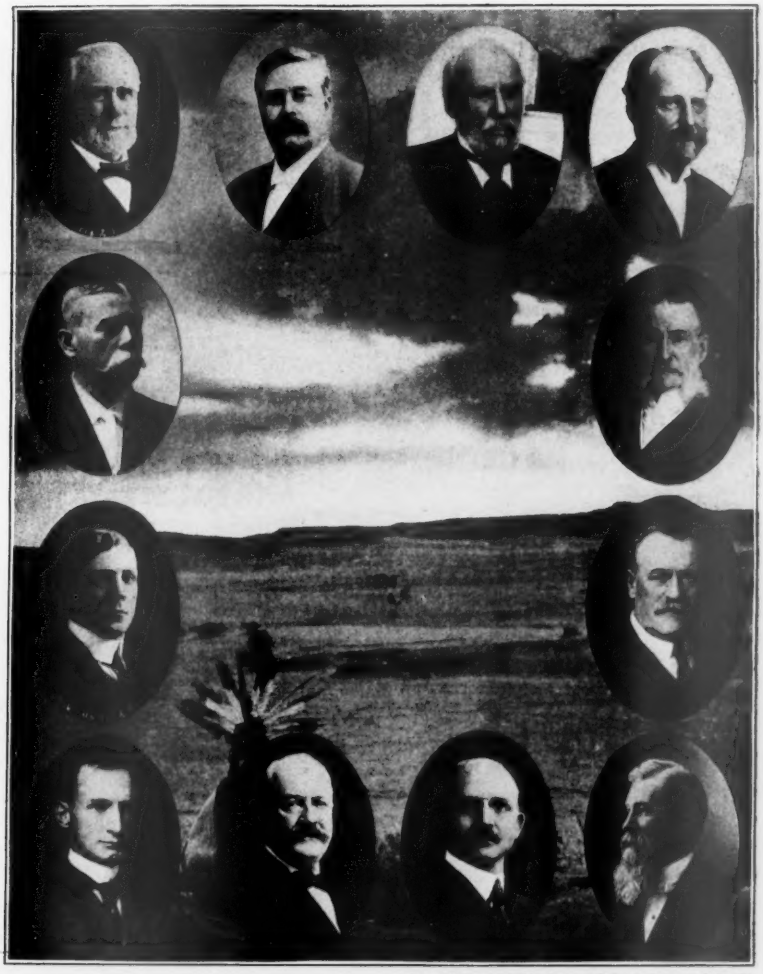
IN OUR State of Mississippi, unfortunately, both Federal Government and State government have acted unwisely and rashly in the past. Our lands, State and Federal, have gone from us, gone from the people of the State, and gone into private and corporate hands. Very little, and that of the smallest value of any in the State, is now possessed by either. However, that does not diminish my interest, nor that of the people of Mississippi, nor that of the people of the United States everywhere, in all the lands in all the States and all the territories that are yet owned by these different States or by the Federal Government. It touches us. It reaches everyone. It concerns the seasons, as to whether they shall be moderate or strict, cold or warm. It concerns the rains, the floods, and all of that which largely affects us, as has been fully explained here and in the reports of this Commission. All these matters are inter-related and we are to a large extent governed and affected by them.

Governor Johnson spoke of the waters that we of the South get in the Mississippi River from Minnesota. So we do get water, and we get the mud and the floods from up there too, and we are interested—those who live in our State near its outlet—in the kind of water we get down there, because the muddier the water, the harder it is to handle, the more bars it creates, and the worse it is. We are interested in the way it comes. If there is an average rainfall in the country amounting to 8.51 inches, we want it to be somewhat more equitably distributed through the seasons than can be when the forests are denuded and the waters only pour down at one time, and instead of having the leaves, and grasses, and roots to lead it under the earth, a greater part of it is forced down upon us at once.

One-sixth in area, one-third in value, of Mississippi is in what is known as the Mississippi Yazoo delta. It is, when protected from water in excessive amounts, one of the most fertile regions for cotton and other products in the United States, but when overflowed, we can do nothing with it. Until the Federal Government came to our aid in the past few years, the overflows were frequent and very disastrous in effect. These overflows destroyed the utility even for the God-given purpose of agriculture.

We are interested in the matter of the Government increasing its forest reserves. We are interested in Minnesota and all the other States, and in all individual and corporate land questions, in seeing that they properly use those lands which were primarily intended for and now are best adapted to forests. When it comes to agriculture, we are interested in better agricultural methods, not only in our State, but in all the States of the Union; for whenever they adopt a plan to conserve these forests, then will the water be more equally distributed into the smaller streams and thence into the larger rivers and on down to the sea.

We are interested in all that concerns any part of the Union, but especially interested in everything that concerns the water that falls between the Rocky Mountains and the Alleghenies and the Gulf and the Lakes. A large part of that water comes down to us in unequal amounts and under unequally helpful or hurtful conditions. We are all interested in these matters, and we do feel that control and conservation of the Applachian Reserve and the forest reserves on the Rocky Mountains and everywhere else in all the States should be had. We are interested in all the methods of cultivation and we are interested in the advancement and betterment of the conditions of the people of this country. God has so arranged the world and its inhabitants and all its



SECTION OF LANDS

Hon. Knute Nelson
Hon. F. E. Warren
Hon. Swager Sherley
Hon. Herbert Parsons

Hon. N. B. Broward

Frank C. Goudy

James J. Hill

George W. Woodruff

Hon. George C. Pardee
Chas. MacDonald
Murdo MacKenzie
Dr. T. C. Chamberlain

material conditions that the best use of each individual, when seen in its larger and broader light, is the best use for us all. So we are interested in the diffusion of the knowledge which has been collected by this Commission, and shall watch with great pleasure its dissemination.

We are interested in having what has been collected here as data and statistics, concerning our natural resources, carried back to the individual, that it may enable him in his own affairs and in public affairs, whether of his county, city, State, or Nation, to be fully informed, and to make known his wishes and his interest, and that his representatives in public affairs shall reflect these wishes and these interests or else give way to others who will do so.

The greatest work I can do as Governor of Mississippi is to carry back to that State, personally and through its educational and State and county and other agencies, all of the data that has been gathered here for use and for the guidance of our personal business and official and political action now and hereafter—and that is what I propose to do.

Coming down to where it affects us personally, where the Governor can be of aid, I come from a State to which some allusion was made in the reports yesterday in the Southern Commercial Congress, where three-fifths of the population are negroes and two-fifths white. It is a great agricultural country. Our interests are agricultural. Politically, there is nothing to say except that we are more united than any other State in the Union. When it comes to our action on this question of conservation of our resources, I trust we will be as unanimous. This matter is of interest to each of us as citizens of our townships, counties, cities and States, and our Nation. Each will have its responsibilities and duties, and we as citizens, all desire to get all the benefit that each can bring in its appropriate sphere and province, so we are not jealous of the Federal Government, at least those of us who see it in the right light. We are grateful to the Federal Government; we are proud of our Government. We look for its help in many lines in which the State cannot or does not help, at least as fully as the Federal Government does. As an agricultural matter, you may ask in what particular lines the Federal Government has aided us. First, against the waters, that through the improvident methods of cultivation and deforestation have been thrown upon us in such hurtful quantities and qualities. The Government helps us in order to help navigation, and whatever affects navigation through its interstate commerce affects the Federal Government, and comes to our relief as it should do in Louisana and Mississippi especially, being two of the States on different sides of the Mississippi River at its mouth, through which all of these waters must finally be discharged. The Government came to our relief when the people of the Yazoo delta were unable to establish levees of sufficient strength to retain the waters. The Government sent an engineer of great efficiency, with a wide knowledge of conditions of engineering and levee construction which the Federal Government had obtained through all the world and through its various agencies, and which we ourselves did not have. It furnished the most experienced engineers and helped us to defray the expenses. Then when we had the water cut off, as we have had down there, the Government came to us again and gave us aid through its engineers in matters of drainage, and now we have cut off from the overflow of the Mississippi, the lands of that State, many of which are now available that were not theretofore of any use at all. When we came to the question of lands over which water stood an unnecessarily long time, the Government came to us again, and now the Government engineers are aiding the State engineers in making a drainage map of that territory.

The Federal Government, through its extended lines of activity, is doing for every part of this country a great and beneficent work. It is working along the lines to which this Commission has been turning, along the lines to which attention has been directed through President Roosevelt calling the Conservation Congress here last May; and the work that has been done by him since, and by his most able assistants here, through our chairman of this meeting, is the one with which we are all familiar. They have directed study and attention and thought to all of our natural resources, to their distribution, to their value, and to these agencies which were hurtful to us and to the remedies by which they could be relieved.

In behalf of a Southern State, of a State which, as I said, is united when it comes to politics, we wish to acknowledge our obligation, and gratefully we acknowledge it, to the Federal Government and to these most excellent and helpful officials for the services they have rendered us, referring especially to our worthy President and the chairman of this meeting.

Following Governor Noel's address, the session was open for general discussion. Governor Ansell, of South Carolina, opened the discussion with a reference to the bill pending for the Southern Appalachian National Forest. He spoke of the destructive floods of last year and commented at length upon the loss of soil caused by the wash of the torrents, and the relation

of forested headwaters to equable stream flow. He declared his deep and intense interest in the work of the Conference, particularly as it related to the conservation of soils, saying that if the Conference accomplished nothing more than to make people think, and act upon their thoughts, with a view to preserving for their children and their children's children the natural resources of land, waters, forests, and minerals to which they will justly be heirs, it will have done much.

Governor Broward, of Florida, followed with a few remarks along similar lines; after which Senator Newlands, of Nevada, offered some suggestions for practical cooperation between the States and the Nation in the work of conserving the natural resources of the country. His suggestions were for legislative or executive action on the part of the individual States, following a plan to be adopted, for the sake of securing uniformity of laws as between the States. The Senator's remarks called forth the statement from the Chair that already twenty-eight States have appointed conservation commissions, and that thirty or more National organizations have done likewise. The discussion was followed by the reading of the report of the Alabama Conservation Commission by Mr. W. P. Lay. The report follows:

ADDRESS OF MR. W. P. LAY

AS TO the reports from the States and the conservation commissions appointed by the States, I have the honor of being Chairman of the Commission, appointed for Alabama. We prepared a report and turned it in to your secretary, which I believe you have before you. I reserved a copy of that for myself. It contains probably fifty or seventy-five pages and takes up the subject fairly well, as best we could in the short time in which we had to compile it. We only reached the point where we could realize the arduous duties attached to the work, and the importance of the work. The further we looked into it, the more apparent became its importance.

We took up the agricultural question and the land question, as well as the question of waterways and the question of forestry and minerals. We found the study of some of those subjects extremely interesting.

I took up the subject of our waterways, and gave that matter considerable study and attention. I was one of these individuals whom you might probably say was suffering from water on the brain because of great study of this water question, and I had been for a number of years. In looking into the matter I found some very interesting facts and the field is one that offers great opportunities for study and research. Of our natural resources, I do not know of any that promises more results than are promised by a proper conservation of our waterways. Of course, I only took up Alabama. I did not go beyond the possibilities of our own State, but as a point on that, I will just quote a little here on the possibilities of Alabama and the water powers that can be developed in conjunction with the improvement of our streams for navigation.

We recommended very heartily a dual system of navigation and water power development, as our report will show, in connection with the system of impounding or storing water. Around the headwaters of our streams, as is the case in almost every instance in the United States, is generally found admirable locations for the impounding and storage of water. A careful study of that question promises very great results. As for the power development, it will promise about five to one, where you can increase the power development about five to one, but in my compilation here I have figured it on a basis of about three to one, leaving the balance of the flood waters to go to waste. In figuring it on a basis of three to one, I think the most economical and practical conditions, applicable to the Coosa River and the Alabama River in Alabama, are applicable to almost every stream in our country. Under question D-2 Water Powers, "What are the undeveloped water powers of the United States?" I said:

"Tennessee, with minimum natural flow, 162,000 H. P.

"Tennessee, with practical conserved flow, 396,000 H. P.

"Coosa, with minimum natural flow, 120,000 H. P.

"Coosa, with practical conserved flow, 360,000 H. P.

"Chattahoochee, with minimum natural flow, 115,000 H. P.

"Chattahoochee, with practical conserved flow, 230,000 H. P.

"Under the head of 'Navigable Streams,' I will say, it is probable the possible water powers on unnavigable streams will be about ten per cent of that on navigable streams."

This question was asked:

"To what extent can coal be saved by the substitution of water power?"

And to this question I responded as follows:

"Ten and one-third tons per horse power per annum. The estimated water power available for Alabama, as shown above, is as follows:

"With unconserved streams, 436,000 H. P.

"With practical conserved streams, 1,084,000 H. P.

"This means that it would require 4,505,000 tons of coal per annum to produce by steam the power of these streams in their unconserved state, and 11,201,000 tons of coal per annum to produce by steam the power of these streams in their practical conserved state."

If Alabama produced to-day 14,000,000 tons of coal, it would take 11,000,000 tons of that coal to produce the power of these streams that is now going to waste. Suppose for a moment that the coal fields of Alabama were sliding down and going over a precipice into space at the rate of 11,000,000 tons per annum; how long would it take the people of this country to rise up and demand that that waste be stopped in some manner? What is being done is to let our water go over the precipice, while we burn up our coal. It offers, if you please, a very great study and a very great opportunity for conservation. We hear our coal experts say they are looking forward to the time when our coal supply shall be exhausted, and yet in Alabama the power that is going to waste to-day is equivalent to 11,000,000 tons of coal per annum. That proportion would probably apply to every State in the Union. Many of our States will not be able to produce the power by water that Alabama produces, while others will produce a great deal more.

That is the power side of the question. In speaking of the advantages of the dual system of navigation and power, I have explained only the power. What can come to navigation in conjunction with this matter? We have a condition in Alabama on our streams, in the Alabama River especially, which has been a great stumbling block in the improvement of our streams, from the fact that they flow through an alluvial soil, and, with reference to the Alabama River especially, are subject to change in formation of sand bars. The able engineers of the United States have reported plans for its improvement, but they have never been sanguine about the success of these plans, in consequence of the alluvial soil and the formation of sand bars.

As a result, a study has been made of the question of impounding or storing the headwaters of the Alabama River, with the idea that during low water periods, those storages can be drawn on in aid of this navigation, and at the same time the water work its way through, turning the wheels of commerce in the production of manufactured goods. We find that our low-water periods extend over about sixty to ninety days on the Coosa and Alabama Rivers, and that only about once in ten years. We find that about 35,000,000,000 cubic feet of water stored in the region of the headwaters, will furnish a sufficient quantity, with intervening showers, to guarantee a discharge from that storage of about 4,000 cubic feet per second, thus carrying us over the sixty or ninety days of any low-water period that has ever yet occurred. The stream in its natural flow carries about 2,000 feet per second. With the addition of 4,000 cubic feet per second, as I say, which will only be necessary for sixty or ninety days, probably in every ten years, the stream then will carry a discharge of 6,000 cubic feet per second. With 6,000 cubic feet per second flowing down the Coosa River over the rapids, it will produce this additional horse-power which I have just read from the report, by passing through the numerous turbines which could be placed along the stream. We find thus that it will furnish on all parts of the Alabama eight and one-half feet of navigation at all periods of the year, except at one point, and that is at the Canton bar, and at that particular point it will furnish seven and one-half feet of navigation. While the river is within itself, we can hardly devise a scheme that will guarantee over four feet of navigation; while with this storage or impounding system, we have the promise, as I say, of seven and one-half to eight and one-half feet of navigation, which will solve the problem of the Alabama River more effectually than it is possible to solve it in any other way. Those conditions as they apply to Alabama would apply everywhere.

We find our studies along those lines hardly begun. The possibilities of the advantages that can be conserved by our waterways probably will apply to everything else—to our coal mines, ore mines, lands and forests. While the duty has been rather arduous, it has been very interesting. We have had no money at our command to enable us to obtain these results and this information, so we have had to go after it ourselves. We have done the best we could, and hope you may find it will be of some service and benefit.

Following the presentation of Mr. Lay's report, Doctor Van Hise, of the University of Wisconsin, representing the Wisconsin State Conservation Commission, read the report of that Commission on the subject of lands. Doctor Van Hise's address bore more particularly upon the subject of phosphate in the lands, the line of his argument being the reduced fertility of farming lands and the necessity for conserving the elements of fertility for the safeguarding of American agricultural interests.

ADDRESS OF DR. VAN HISE

REPRESENTING the Conservation Commission of Wisconsin, I am requested, in the absence of the Governor, to speak on one subject of the work of that Conservation Commission which is apropos to the subject under discussion this afternoon—the matter of lands. I might speak of the forest work, but that work will come up tomorrow and therefore I shall say nothing in reference to it, although the work of the Conservation Commission upon that subject is probably the most important work it has done.

The subject to which I shall call your attention for a few moments is that of the phosphate in the land. I select this particular subject because it shows the interrelation of the work of the State with reference to this subject. You may wonder why I, in Wisconsin, a State which has no phosphate deposits, should be especially interested in this question; but this is a question in which every State is interested, whether phosphates are present or not. Of the three elements of fertility in the soil which are most likely to be lacking nitrogen, potassium and phosphorus are the important ones. Nitrogen may be obtained by methods which I need not discuss; potassium is present to the extent of 0.2 or 0.3 per cent, and even if the deposits of nature are used up, we shall be able, by sufficient expenditure, to use the original rocks as the source of our potassium to fertilize the soil. Phosphorus is present in the original rocks to the extent of only 0.11 of one per cent. It is the element which is most crucial in the matter of soil fertility. Mr. Hill, at the conference last spring, told of the decreasing productivity of the grain fields, not only of the Northwest, but of the various parts of the country. The most important chemical factor in the matter is the depletion in phosphate. You who are familiar with the situation in the upper Mississippi valley may think that those wonderfully fertile States have a sufficient amount of this element, and yet an investigation recently made by the Agricultural and Experimental Association of Ohio, Illinois and Wisconsin, shows that already in these rich States that element has largely been extinguished. So far as I know the only quantitative studies which have been made are in Wisconsin. There the fields which have been cropped for fifty years, as compared with the original soil, have lost one-third of their phosphates. The Director of soil work in Illinois is here to speak for his Commission and will supplement my statement in reference to that State.

There is absolutely no way in which we can increase our supply of phosphate. If the loss for the United States has been as much, or one-half as much, as it has been for the State of Wisconsin, for the cropped fields for fifty years, a simple calculation shows that the entire product of our mines would be required for one hundred years to restore to the soils their original fertility in this element. And yet one gentleman who has made an estimate of the deposit of phosphate in Florida and South Carolina and Tennessee and given rough estimates as to the probable amount that may become available in the West, leads us to the conclusion that the supply of this element is inadequate, being sufficient to last for only fifty years.

Last month there was an announcement of the Franco-American Consolidated Phosphate Company, the capital of which is almost exclusively held abroad. This phosphate company has already purchased a large portion of the richest phosphate lands in Tennessee, which contains the largest supplies of phosphate in the United States, with the exception of these western deposits. What is the purpose of obtaining these lands? Manifestly, it is to ship our phosphates abroad to restore the depleted soils of Germany, France and Spain, for all three of those countries are represented in the capital of that company. Gentlemen, it seems to me there should be a law which would prohibit the exportation of a single pound of phosphate from this country. We do not want an export duty in this case. We want prohibition, the same kind of prohibition with reference to phosphate that has been adopted in the South lately with reference to another matter—absolute prohibition. To allow these deposits of phosphate to go out of this country is nothing short of agricultural suicide.

Under our modern conditions we are losing enormous quantities of these fertilizers. The investigations which have been made in Wisconsin by the agricultural stations with reference to this question, show that a large proportion of fertilizers is allowed to go down by the wash into the river and thence into the sea. Under our modern sewerage system, by which we dump into the rivers the sewerage, we also

are sending that valuable element into the sea. Here in the City of Washington itself there is going down into the Potomac and into the sea this valuable fertilizer. Upon that point, we have made a rough computation and we estimate that through the sewerage systems of the United States which dump their material into the sea, the equivalent of at least 1,200,000 tons of phosphate rock are lost annually. Upon the soil depends our food and clothing, and of all the fundamental questions which can come before this Commission, the preservation of the fertility of the soil is the most fundamental. If this is a correct conclusion, we must in some way stop this criminal waste of valuable fertilizer; for after all the amount exported is small, compared with the amount that is wasted by our improper methods.

Here is a great responsibility, and a great opportunity for the Governors and the teachers of agriculture all over the country. The people must be taught to realize their responsibilities in this matter. They must be brought to understand that unless elements of fertility are preserved, unless soil erosion is controlled, these fundamental resources, more fundamental than all other resources together, will become greatly depleted and will be able to sustain only a relatively small population.

You will ask the question, if I am right, how is it that the crops grow well in China and Japan and in Germany? In Japan especially, and to some extent in China, all the fertilizing element produced by animals and by man goes back into the soil. If this is done, the phosphate may be used over and over again and the fertility of the soil in phosphate may be perpetually maintained.

I dwell upon this subject at perhaps too great length because it seems to me to be one of the great fundamental questions before us and comes not only in connection with the matter of soil but also in connection with the report of the Conservation Commission which refers to education. This is one of the questions which the Commission in Wisconsin has taken up with reference to the question of its State, but you can readily see we cannot take it up in our State without thinking of the situation in the Southern States and in the Western States. No other subject shows more clearly how our future welfare is interlocked and how the Nations and the States and the individual must coöperate in this matter of retaining and conserving our natural resources.

Mr. R. H. Richards, president of the American Mining Congress, followed with a short talk upon the necessity for popular education along the lines of conservation of resources, referring to the necessity, also, for changes in laws governing mining and mine operation, so that the man underground may have the same legal and constitutional protection as the man above the ground. He was followed by Gov. N. C. Blanchard, of Louisiana, who commented at length on the report of the Section of Lands. Governor Blanchard took issue with Governor Johnson as to the impending exhaustion of iron ore deposits, and stated that it was his belief that the Governor of Minnesota was unduly optimistic in his views. He made a strong appeal for legislative action on the part of the different States, saying that through such action the great masses of the people of the country would be better and more quickly informed as to actual, present conditions than in any other manner.

Governor Blanchard was followed by Chairman Teal, of the Oregon State Conservation Commission, who read the report of that Commission.

ADDRESS OF J. N. TEAL

THE Governor of our State appointed a commission, of which I had the honor to be elected chairman. That commission has prepared a report and has printed it and filed it with the National Commission. There is one thing, however, that we discovered, which doubtless any State conservation commission will discover if it will go into the matter, and that is the tremendous wastage of our natural resources. Without going into that question at all, I think it is conceded that that is the fact. The next fact, which is also conceded, is that there must also be a stoppage of this waste.

The third question of law, which ought to be conceded, and if it is not conceded there is little good of going any further, is a question upon which we can all work with safety, and that is that we are trustees of a trust, that we have no more right to dissipate the principal of the fund that has been placed in our hands while we are temporarily here upon earth, any more than a trustee under a will, or a guardian, has a right to dissipate the funds of the children who have been placed in his charge.

Now, that is a fundamental fact. To illustrate. You take the question of a great water

power, which certainly is something which has been produced by divine Providence. The idea to me is entirely abhorrent that there is any legislative body that by itself, by its *ipsi dixit*, by the passage of a law, can make it possible for me to go and file in some county clerk's office and thereby acquire that water power forever and ever, and after me my children and their children, to own it forever and ever. I say that it takes an egotism, and such a depth of egotism that we do not often see, to accept that as a legal proposition or as a fundamental fact, or as a thing that is right; such an egotism that I, at least, have not reached yet.

I do not mean by that to say that these powers should not be used. I would like the freest kind of use of them. But it should always be a beneficial use. There never should be any such thing as a monopoly of the powers of a great State in that direction or in any other direction, if I had the power.

In fact it is a good deal like resolutions that we pass. We believe in honest men and virtuous women, of course we do. We believe in the conservation of the natural resources. Of course we do. But how are we going to get at them? I believe that, before this convention adjourns, there ought to be some practical scheme devised, some basis upon which we could rest hereafter. And I have a basis. Many others may have other bases better than mine, but still I have one that I would like to suggest. I believe there should be a resolution passed, offered by some Governor—not by the representative of some Governor, but by some Governor—first, that the National Conservation Commission should be made a legalized body resting upon exactly the same basis of legality and right to exist as any other great department of the Government, with sufficient funds to enable it to carry on its work properly.

I believe that there should be the closest relationship between the States and the general government. I believe that the States should, through their Governors, make the connecting link between the National Conservation Commission and the State Conservation Commissions. I believe that the State's powers and the United States' powers should be coördinate, should work together.

If we do that, we will have a consciousness, anyway, of doing everything we can, of passing down to the future unimpaired the trust which has been placed in our hands.

Following talks by G. E. Condra, of the University of Nebraska, acting as representative of the Governor of that State; Doctor Rothrock, chairman of the Pennsylvania State Conservation Commission, and one or two others, the Conference adjourned until ten o'clock Thursday morning.

THURSDAY MORNING SESSION

Section of Forests

SUMMARY OF SECTION REPORT

THE United States now has 550,000,000 acres of forested lands, or about one-fourth of the total land area of continental United States. The original forests covered not less than 850,000,000 acres. Publicly owned forests cover one-fourth of the total and contain one-fifth of the timber standing; privately owned forests cover the remaining area and contain the remainder of timber standing. Scientific forestry is now practiced on seventy per cent of the publicly owned forests and on less than one per cent of the privately owned forests. The total yearly growth of our forests is less than seven billions of cubic feet; we take from the forests each year, including waste in logging and manufacture, 23,000,000,000 cubic feet, or more than three times the annual production. We use annually 100,000,000 cords of firewood; 40,000,000,000 feet of lumber; more than 1,000,000,000 posts, poles and fence rails; 118,000,,000 hewn ties; 1,500,000,000 staves; 133,000,000 sets of heading; 500,000,000 barrel hoops; 3,000,000 cords of native pulpwood; 165,000,000 cubic feet of round mine timbers, and 1,250,000 cords of wood for distillation. Not less than 50,000,000 acres of forest land is burned over annually, and since 1870 forest fires have each year destroyed an average of fifty lives and $50,000,000 worth of timber. One-fourth of the standing timber is left or otherwise lost in logging; the boxing of long-leaf pine for turpentine has destroyed one-fifth of the forests worked; the loss in the mill is from one-third to two-thirds of the timber sawed, and the loss in the mill product, from seasoning and fitting for use, is from one-seventh to one-fourth. In other words, only 320 feet of lumber is used for every 1,000 feet that stood in the forests. Our lumber cut has increased less than fifteen per cent in the last seven years, but the average price at the mill, for all kinds of lumber, has risen forty-nine per cent, and the rise continues. We invite by over-taxation the misuse of our forests, and we destroy by fire in one year timber enough to supply the whole Nation for three months. We should plant, to protect farms from wind and to make stripped and treeless lands productive, an area larger than that of the States of Pennsylvania, Ohio and West Virginia combined; so far, lands planted to trees make a total area less than Rhode Island. By reasonable thrift we can produce a constant timber supply beyond our present needs, and with it conserve the usefulness of our streams for navigation, power, irrigation and water supply. The conservation of public forests is the smaller task before the Nation and the States; the larger task is to induce private owners—three millions of men—to take care of what they have, and to teach woodusers how not to waste. We must stop forest fires; we must, by careful logging and other methods, reduce waste and leave cut-over lands productive; we must make the timber logged go further, by preservative treatment; we must avoid needless waste in the mill, the factory, and in use. We must plant up those lands, now treeless, which will be most useful under forests; we must

so adjust taxes that cut-over lands can be held for a second timber crop, and we must recognize the fact that timber costs no less to grow than to log and saw. We must continue and perfect, by States and Nation, the preservation by wise use of the forests already publicly owned, and we must extend the same treatment to other mountain forests more valuable for the permanent benefit of the many than for the profit of the few.

AT THE opening of the morning session of Thursday, December 10, the chairman suggested that the Conference direct the limiting of speeches to ten minutes, which was done. The chair also announced the appointment of a special committee from the Conference to attend a meeting of the Senate Committee on Commerce. Following this routine business, Senator Reed Smoot, of Utah, chairman of the Section on Forests, spoke.

ADDRESS OF SENATOR SMOOT

I TAKE it that we are here this morning for the purpose of seriously considering the vital questions affecting the conservation and preservation of the forests of this country. It is a subject greater than any man, greater than any State. It is as great as the Nation itself. Every man, woman and child of today, and everyone yet to be born, is interested in this great question. You have noticed in the discussions here that there is no doubt that the question of the conservation and preservation of the forests has played an important part, and therefore I am not going to make a speech and particularly call attention to any of the great resources of any particular State, because I take it every Governor here can sing the praises of his own State and speak of the wonders of its natural resources; but I will call to your particular attention and emphasize, if possible, some of the points that have been made in the report of the Conservation Commission to the Governors and which will be made to the President of the United States.

God has been lavish in placing in this land of ours all that makes life worth living. No country on earth has so many blessings naturally given to it, and it seems to me we have been, in the past, lax indeed in trying to preserve them, not only for ourselves, but for posterity.

Gentlemen, you heard the report of the Committee read in your presence on yesterday, in which it was stated that an inventory of our forest resources, the best we have ever possessed, has just been completed. This inventory is the result of the combined and vigorous effort of all the State and federal agencies concerned.

The facts which flow from this great accumulation of knowledge regarding our forests will soon be made common knowledge, as they ought to be. From these facts three great conclusions spring: The first, that the forest problem before the individual, the State and the Nation, is grave and urgent; the second, that we can solve this problem if we will act unitedly, vigorously and at once; the third, that if we fail to act, the possibility of a satisfactory solution will be rendered doubtful or even wholly removed. The time has passed for us to be content to dabble with the vital internal question which the right handling of our forests presents. It may well be our pride that no nation has a more wholesome and enthusiastic public sentiment for the right use of the forests than our own. But it may well be our shame that no nation takes poorer care of its private forests than our own country.

This is not the time for harsh criticism of the agencies which have brought about the deplorable condition of our forests. But it is the time for prompt, effective and united effort to remedy this condition. The time has long passed when the only need for the conservation of our forests was in order that we might fulfill our duty to those who came after us. The time is already here when for our immediate welfare the conservation of all forests, in private as well as in public hands, is absolutely essential. Forestry no longer makes its appeal to the American people solely through their sense of public duty. Its appeal now rests upon a firm conviction and foundation, not only of public duty, but of urgent and imperative industrial and commercial necessity.

I wish at this time to direct your attention to some of the special items of the commission's report, so that you may each be impressed with the importance of these particular facts. Consider the situation! This Nation began with half its area under forest. Today, barely one-fourth of our country is covered by forest growth. Only one-fifth of the standing timber which remains is in public ownership, and therefore belongs to the whole people. Four-fifths of what remains is in private hands. Year by year we take more and more wood from our forests, and year by year, by careless cutting and by fire, we lower their capacity to produce again. The yearly production of our forests by growth is seven billion cubic feet, a volume of timber so vast that the mind can scarce comprehend it; but a volume of timber over three times as large is taken from our forests each year. Nor is

this the complete indictment against us as a Nation, for our misuse of the forest. We invite, by over-taxation, the destructive handling of forest lands. We should plant, to protect farms from wind and to make stripped or treeless lands productive, an area larger than Pennsylvania, Ohio, and West Virginia combined. But so far lands successfully planted to trees make a total area smaller than Rhode Island.

It seems to me one of the most destructive elements of our forests comes from forest fires, and if the Governors can in any way, upon this point of view, educate the indivdual who owns the forest, this meeting will not have failed.

I was visiting the Appalachian country a short time ago and was upon the great Biltmore estate, and one of the party asked Dr. Schenck, the man in charge, if he had five million dollars, the interest on which was to be used by him for the preservation of forests, what he would do with it. His answer was, without hesitation, "I would use every dollar of it for a fire patrol." Asked again if he had twenty million dollars what he would do with that, he said, "I would increase my fire patrol just four times."

Since 1870, forest fires have each year destroyed an average of fifty lives and fifty million dollars' worth of timber. Not less than fifty million acres of forest is burned over yearly, and, as I heard one very prominent man in West Virginia testify before the committee but a few days ago, the forest fires of West Virginia alone this year have cost the State in the loss of timber five million dollars, and when we begin to figure on that great loss, we find that the fire patrol would have cost the State of West Virginia one hundred thousand dollars a year, and that that sum would be ample to protect it against forest fires. Think of it, gentlemen! The loss in one year is sufficient to patrol the State of West Virginia for fifty long years!

One-fourth of the standing timber is left, or otherwise lost, in logging. The boxing of the long leaf pine for turpentine has destroyed one-fifth of the forests worked. The loss in the mill is from one-third to two-thirds of the timber sawed. The loss in the mill product, through seasoning and fitting for use, is from one-seventh to one-fourth. The damage done by destructive forest insects is enormous and largely preventable. Only 320 feet of timber are used to each 1,000 feet, which stood in the forest.

Nor is the indictment yet complete. By the needless destruction of our forests we impair the value of our streams for navigation, irrigation, water supply, and power. We spend millions of dollars in river and harbor improvement to repair damage which, at the cost of mere thrift and foresight, could have been avoided. We deal with the effects and we ignore the cause. We discuss the exact scientific relation between the forest and the stream, when each year the total quantity of silt carried by our rivers as the result of forest denudation and poor soil management, would cover one foot deep a surface of more than nine hundred square miles. In our blindness, we have failed to take advantage of the lessons which the history of other nations contains. Most other countries have learned through bitter experience that forests which are not conserved will be used up, and they are taking care of what they have. We are among the last to learn it.

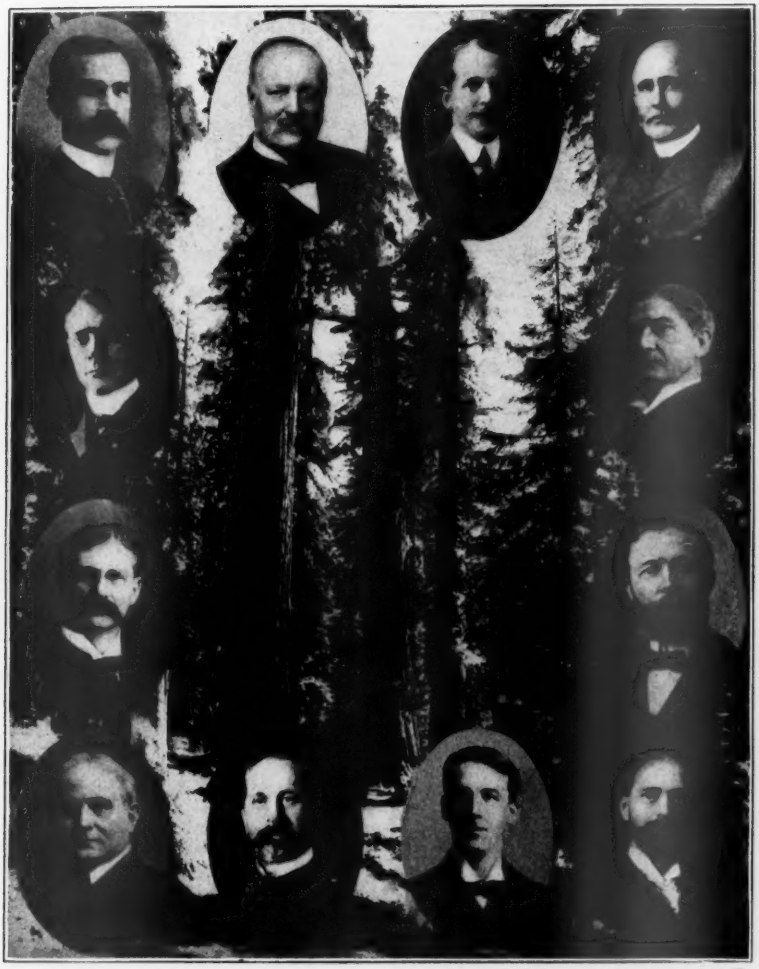
So much for the indictment. Every clause in it is absolutely true. What would you think of the business capacity and the foresight of an individual against whom such an indictment might be justly read? So much for where we stand. Now let us consider what must be done, and where might we stand if it were done.

These are the things which we must do; they involve no intricate machinery of law or practice; they are simply incontrovertible conclusions based upon the conditions which now exist and which must be remedied: First in importance is the conserving of forests in private hands. Private forest owners, which means three million men, and individual forest users, which means everyone, must practice reasonable economy in the woods, in logging, in milling, and in the use of timber. Above all, they must protect their forests from fire. This they can do at an annual cost equal to one-fifth of the damage forest fires do each year, not counting injury to young growth. And it is this young growth which, if preserved, would grow a constant supply of timber for those who come after us.

I do not ask of the private owner and user that he apply any economy which is not entirely practicable, and which does not mean present as well as permanent profit. I ask only that he protect his forest from fire, that he log it conservatively, and that he plant uplands suited only to forest, which have been so denuded of trees that they now fail even to pay the taxes levied upon them. To justify private owners in applying these measures, two main conditions are necessary, both of which exist today: the one, a knowledge of the central fact that these measures are needed and that they will pay; the other, the availability of knowledge as to how these measures may best be applied. If anything that I could say to the Governors today seems more important than another, it would be to return home to your States and educate the people.

One of the urgent tasks before the States is the immediate passage of tax laws which will enable the private owner to protect and keep productive under forest those lands suitable only for forest growth. In our discussion as a committee of the whole there was a question raised by some one present as to this recommendation, claiming that it was or would be at least the means of great monopolies securing more land and holding it where the timber would not be taxed.

I have studied this question in foreign lands, in Germany and Switzerland in partic-



SECTION OF FORESTS

Hon. Reed Smoot
Hon. A. J. Beveridge
Hon. Chas. P. Scott
Hon. Champ Clark

J. B. White

Gustav H. Schwab

Henry . Graves

O. W. Price

Wm. Irvine
Hon. N. C. Blanchard
Chas. L. Pach
Irving Fisher

ular, and I find that the result has been exactly the opposite. It does seem to me that the great monopolies which will try to control them can much better afford to pay taxes on great tracts of land than the individual man with scanty means at his command, who believes in reforestation and yet upon whom the tax would be a burden so great that it would be almost impossible for him to carry. I believe with all my soul in the tax laws as recommended in our report, and that they should be changed according to these recommendations. It is a shortsighted policy which invites through excessive taxation the destruction of the only crop which steep mountain lands will produce profitably. Taxes on forest land should be levied on the crop when cut, not on the basis of a general property tax—that unsound method of taxation long abandoned by every other great nation. Another urgent task before each great forest State is not only the passage of adequate fire laws, but their actual enforcement. More is needed to protect the forest from fire than a law upon the statute books. It requires the definite commitment of all the States to their inherent responsibility for the protection of the forests within their boundaries from fire, and that entails, and absolutely entails, the employment of a trained force whose first duty is fire patrol.

The Nation, through the Federal Government, confronts the urgent duty of conserving all, not merely a part, of the public forest lands by use. Until this standing timber is adequately protected and conservatively used, not only as at present on National Forests, but on all other public forest lands as well, its very existence is imperilled. Grave injury has already been done. It would be a national disgrace should it continue.

I have recently visited that great and beautiful forest region which lies within the Southern Appalachian Mountains, and I have this to say regarding the proposed purchase of a small portion of it by the Federal Government for the permanent use of the whole people. I believe as firmly as I believe that I am standing here on this platform, that unless adequate action is taken, and taken soon, the destruction now going rapidly on in the Appalachian Mountains will either become totally irretrievable, or retrievable only at an expense so vast in time and money that it would stagger this Nation. I do not believe that it is necessary or advisable for the Federal Government to acquire all mountain forests in this region, nor half of them, nor a fourth of them. The purchase of one-twentieth of these mountain forest lands, their protection from fire, and their conservation by use, would solve, and solve satisfactorily, this grave and urgent problem. But this entails, as every other effective national measure for the preservation of the forest entails for its success, the coöperation of the States concerned, through fire protection, and of the private forest owners concerned, through better care of forests in private hands.

These are the incontrovertible conclusions which flow from the knowledge of how we stand along main lines with relation to the forest. Unless we do these things, our forests will inevitably fail, and the failure of our forests means the erosion of soil upon the mountains and a falling off in the usefulness of our streams. Action upon each of these conclusions requires no vast expenditures, no upheaval in present economic conditions, but merely the exercise of reasonable foresight and thrift by individual forest owners and users, and all the States, and by the Nation. No one of these great agencies can alone solve our forest problem. They must work together, unitedly, vigorously, adequately, and at once. If they act, together and now, we need not worry greatly about our future timber supply. If they fail to act, it will mean inevitable and grave timber scarcity in the near future, an actual timber famine for those who come after us.

We can no more disregard, in our use of the forests, than in our use of the mine, of the stream, and of the farm, the fundamental truth that want follows close upon the heels of waste. But we should be thankful as individual forest owners and forest users, thankful as individual States, and thankful as a federation of States, that the time for the application of an adequate remedy is not wholly past. Grave injury has been done to our country, which cannot be repaired in a year, nor a decade, nor wholly effaced in a century. But the fact gained by our present inventory, above all other facts in importance, is that if we act at once we still have forest enough to produce under right management at least what timber we need.

The cause of practical forestry is a just cause. On the one side are established habits of wastefulness and of misuse. On the other side is the doctrine of common sense, of business sagacity, of public duty. Because I believe in the American people, I believe that they will follow the right course and turn away from the wrong in this, as in all other crucial questions, upon which depends the permanent welfare of our country.

After brief addresses by Messrs. Page, of Virginia, and Howell, of Wyoming, in which both speakers dwelt upon the magnitude of the task of preparing for a sensible, utilitarian method of conserving the resources of the Nation, and the absolute necessity for cooperation between the States and the Nation, Senator Edwards, a member of the Canadian Parliament, was called to the platform, responding with a short but interesting talk.

ADDRESS OF SENATOR EDWARDS

THIS is the first time I have ever appeared before an audience of the great Republic of the United States, and it gives me great pleasure, I assure you, to do so on a subject which is very near and dear to me, that of the conservation of our natural resources.

I am here at the instance of the Government of Canada, a government having the kindliest feelings of regard for everything which means the promotion of the good of the great United States.

Before leaving Canada, I asked his Excellency, the Governor-General, "Have you anything to suggest to me about what I shall say or to which I shall particularly refer?" He said, "No, further than to join with that great and progressive man, Mr. Pinchot, in promoting the object which he has in view in this gathering."

Before I overlook it in the short time I have to address you, I wish to mention now that I also asked our Prime Minister if he had anything special to mention. "No," he said, "I think you are full of the subject upon which you are going, but there is just one thing on which it would give me great pleasure, if the Congress which is to meet in Washington on the conservation of natural resources would pass a resolution, suggesting that the Government make most stringent laws with regard to railways, in regard to the prevention of fires, for in my opinion they are great disseminators of forest fires." His reason for making that suggestion is that if it should come authoritatively from this source, he would have it in his hand as a lever to enable him to pass a similar law in Canada.

I wish before proceeding, to congratulate, in the most hearty terms, your President and your worthy chairman for what they are doing in this respect, in the promotion of the conservation of the resources of your great country. I have heard, during the speeches and addresses here, matters which interested me intensely. I am repaid for coming here, if to have heard nothing at all but the presentation of the first report and inventory of your natural resources, and I would have gone many, many miles to have heard it and many miles to have heard many of the other speeches.

The question this morning is that of the conservation of your forest resources. Like ourselves in Canada, you have been prodigal with your resources. You have unduly destroyed that great resource, and so have we. A speaker a short time ago said, however, that twenty times as much had been destroyed by forest fires as ever was destroyed by the lumberman's axe. I subscribe to that. That is my opinion. Therefore, the greatest means of preventing that great destruction is the prevention of forest fires.

What is the meaning of preserving our forest resources? Not only their conservation for the people, but also the conservation of our waters for power and the many other purposes to which water may be applied. In Canada we are devoting ourselves today to the same objects to which you are devoting yourselves—aided and promoted very largely by our friend the chairman, who occasionally visits us in Canada on this very important subject.

We have heard something of your inventory in other resources as well as those of lumber. Your country, of course, is a very large one, and your resources in respect to lumber have been greater than ours, but today we are supposed still to have 535,000,000 acres of forest lands. Out of this quantity of forest lands, the government has set aside, as forest reserves, 121,000,000 acres. I do not know how that compares with yours, but I will say this: Thanks to forestry, thanks to the initiative which has taken place with regard to the conservation of our resources in that respect, if Canada takes the lessons that it should take from such gatherings as this, and even at this late day awakens to the necessity of conservation and promotion of forestry. Canada, in so far as her own needs are concerned, need never want for a supply of timber. I am not of the opinion that Canada can be a large exporting country for many years to come, but it will be a great thing for Canada if she is able to conserve lumber for her own needs. Let us hope that the great American Republic will do the same thing, and I believe it will do so, if regard is paid to the lessons which are here taught, if this country becomes imbued, as I hope it will, with this great necessity; and if this comes, I think possibly the United States also need never want for a lumber supply.

In listening to the speeches that have taken place here, two things have been very forcibly impressed upon my mind. I never thought before of the important part water may take in the conservation of your coal supply and in the conservation of our coal supply. Our coal supply and your coal supply may become exhausted. Your iron and our iron may in many years become exhausted; but our water supply, if we preserve the headlands in our forests, never will become exhausted. We are doing exactly what you suggest; we are beginning to impound our headwaters to conserve our water supply. If you do what you can do in that respect, look at the great possibilities that there are of today beginning to conserve your coal, which is a disappearing quantity.

Another thing which impressed me was, what are we going to do when our iron supply becomes exhausted? I was a little surprised to hear that in the middle of the present century iron, as used today, of the quality used today, will become exhausted. To my mind there is one article anyway that can be considered in the way of conservation of iron ore to a very great extent, and that is the use of cement. I am a lumberman, and a lumber-

man on somewhat of a large scale, but I do not build one single structure today of lumber. Every structure that I build is of concrete and steel—largely of concrete. I built a large mill of concrete this very summer, and built a large factory establishment also, all of concrete. It sounds strange for a lumberman to advocate anything of the kind, but I am one of these lumbermen who believes strongly in the conservation of our forests.

Just before I part from you, there is one thing I desire to say to you. Canada has the advantage—and I am surprised to be in position to tell you so, and you will be surprised to hear it, many of you—Canada has the advantage of having secured a large portion of her lumber supply this year from the United States. I am a lumberman and it sounds strange to come from me, but I want you to send it on. Keep sending it to us. Our timber will grow in the meantime, and we will profit later on.

Mr. Lathrop, representing the State Conservation Commission of Alabama, was then recognized for a brief address. He stated that the leading timber authorities are at one in stating that former estimates of Alabama's timber resources are entirely at fault. He stated that not more than ten per cent. of the original timber stand of the State remains, and that the denudation is progressing at an alarmingly rapid rate. Much of the remaining timber, he stated, is second growth, immature trees such as, if properly cared for and scientifically lumbered, would constitute a constant timber resource; but he added that, under existing conditions and with present methods, by far the larger part of this immature timber is being destroyed and wasted. Of the thirty-five counties of Northern Alabama still containing merchantable timber in commercial quantites, he stated that one-third would, within the next six to ten years, be cut over and converted to the uses of agriculture. About one-half of the lands in the territory mentioned are unfit for cultivation and should be made into State or National forests.

A short address by Mr. Andrew Carnegie followed:

ADDRESS OF MR. ANDREW CARNEGIE

CIRCUMSTANCES over which I have no control have prevented me from being with you before. I want to tell you how enthused, how elevated, how delighted, how instructed I have been by this meeting. I have not enjoyed a morning like this at a meeting for a long time, and I will tell you why.

The great obstacle to the reforms that we work for today, the conservation of our resources, lies in a Federal system of government, the general government. None of us would part with that. The relation of the Federal Government to the States is a matter of decided importance, of course. That relation should continue. We must have it. The great obstacle today, as you see, is to get the States and the Nation to work together. That is the one obstacle we must overcome. I told the Waterways Commission a story to show how rapidly we are advancing and sinking the State into the Nation—not obliterating it, however. We are all citizens of some of the States, Pennsylvania, Alabama, South Carolina, Virginia, Minnesota, and others. We are something higher and wider than that. We are all Americans! Let us remember that.

I asked Mr. Blaine once, "What is the most effective speech you ever heard in Congress?" "I will tell you," he said. "It was the first time that it was proposed to appropriate National money for fresh water improvement, and the House became excited and angry. Governor Ritter, of Pennsylvania, had been elected a member of Congress. He had never spoken and had never risen, but to the astonishment of the Speaker, the old gentleman arose. The House hushed in a moment. Everyone asked, 'What is coming?' Governor Ritter said:

"'Mr. Speaker, I do not know anything particular about the Constitution, but I know this: I would not give a cent for a constitution that would not wash just as well in fresh water as it did in salt water.'"

The House did what you did, gentlemen. It burst into one storm of applause, and that bill was passed, and that is the foundation of our whole fresh water improvement today. Go on in that direction. Let us go further and further in that direction, and all will be well.

I wish to say something to the gentleman from Canada. I am a broad American. No lines confine me in that respect. The city of Winnepeg has a library. They founded a historical society, and the first honorary member was your humble servant. I wrote them telling how delighted I was, first, because

they were Scotch, and second, they were our great neighbors, and they were going to record their history as they made it—they are up to date. Then I said that I always figured that Canada occupies with reference to the United States the proud position that Scotland occupies with regard to her southern neighbor, England. Scotland, through its King, annexed England and has ruled it ever since for England's good.

Now, that is the destiny that I predict for North America. Canada will play the part of Scotland; she will annex her southern neighbor and do incalculable good to us in giving us more of the strain of that invaluable element which has made North Carolina and South Carolina so great, the Scotch.

Gentlemen, that is all I wish to say to you, but remember one thing—and it is an audience like this that will promote it. You are State people; but, thank God for this, even above your love for your State you have the greatest empire that ever the sun shone upon, and you are progressing splendidly, you are marching forward rapidly! You people here, you performers, and you, my dear friend, Mr. Pinchot, think we are not driving fast enough. We are driving pretty fast, gentlemen, we are driving well, and there is no limit to what this great continent is to be in the future.

Following the speech of Mr. Carnegie, the chairman called on former Governor George C. Pardee, of California. Doctor Pardee, in his remarks, placed President Roosevelt among the three American Presidents who stand head and shoulders above the others—Washington, who created the Nation, Lincoln, who saved the Nation, and Roosevelt, who has done more to perpetuate the comfort and assist the progress of the Nation than any other Chief Executive.

Doctor Pardee spoke of the effects of deforestation, and cited for examples the Holy Land, China, Spain, and other Old World countries. The fate that has befallen these countries, he said, through destruction of the forests, is the fate that will befall our own country if we fail to heed the warnings we have had, and if we do not profit by the experiences of the countries that are now suffering because of the disappearance of their wooded areas.

"We put on the uniform; we shoulder the musket, we follow the flag in time of war, and we do not hesitate to suffer for the good of our country. But there are greater crises than those of war. There are problems of peace; and it is one of these problems that confronts this country now, as we of the West know better, perhaps, than you of the East and the South. One of the problems that confronts us—one of the greatest importance in its bearing upon the present and the future—is the salvation of the country through the salvation of its forests. The perpetuation of those great natural resources which have made, which are now making, and which will, if we save them, continue to make us great—this is what the salvation of the forests means. And that can only be done when the people of the States remember that, while the States are great, the American Republic is greater than them all."

President Evans, of the American Automobile Association, and a member of the Pennsylvania State Conservation Commission, followed Doctor Pardee with a talk on good roads, in which he referred to the work that is being done along the line of permanent highway improvement by the various States, with particular reference to the Eastern States. He urged the need of uniform legislation in regard to roads and their maintenance. He referred to a remark made by a Pennsylvania farmer, who said that he did not object to using four horses to haul a load uphill, but thought it was going too far to be compelled to use four horses to pull it downhill, and said that that condition of affairs was typical of much of the highway system of the United States. The speaker concluded with the remark that he hoped soon to see the National Conservation Commission in touch with the practical, everyday necessities of the people in many phases of economic work and thrift which do not lie strictly within the borders of the great, broad subject of forest preservation, mining or the other branches of conservation work.

State Forest Commissioner Whipple, of New York, followed with a stirring address. Running past his time limit of ten minutes before the conclusion of his address, the Conference unanimously agreed to an extension of time, to permit Mr. Whipple to finish his remarks.

ADDRESS OF COMMISSIONER WHIPPLE

I AM very much in doubt whether a plain, practical man ought to take much of the time of a convention like this, where there seem to be so many scientific men; but to me it has always seemed that what we call in Western New York common horse sense is so much better in working out a difficult problem than, sometimes, technical knowledge alone is, that perhaps you can stand a little just now.

Forestry in this country is very young—practical forestry, that is. I have listened here for two days, and I listened last spring at the other conference, to splendid things said and great thoughts pronounced; but very few men have suggested remedies that it seemed to me we could apply our hands to and do something.

The paper on forestry this morning was a splendid paper; but I have to say, Senator, that you left out the one great, important thing, after all, and I hope you will pardon me for saying it—you have not said a word about how to reproduce forests, practicallv.

Now, it is all nonsense to talk about our having forests enough by natural reproduction, and you all admit it. You say that we are cutting off our forests three and a half times faster than nature reproduces them. If that is true, that is the whole proposition, is it not? How long is it going to be before you have no forests, however carefully you handle them?

The gentleman from Alabama thinks that they have forests enough, if practicallv handled, to take care of the interests down there for some time; but do you not know that you are cutting forty billion feet a year out of the United States forests, and a billion five hundred million feet out of my own State's forests, and if you will look at the charts, you will see that that is a small part of it, and still it is more than three and one-half times the growth. If you admit that fire is sweeping away more than you cut; that one-third of what you cut is loss; that your population is increasing so fast that in fifty years you will have two hundred million people in America; that the demand for timber is increasing faster than your population, and that the supply is decreasing much faster than either, what are you coming to in America? That is the question I am asking.

You are using yearly two billion feet board measure for newspapers alone.

In the State of New York there is standing today only about forty-one billion feet of saw timber. We are cutting it five times as fast as it is produced. The State owns a million six hundred thousand acres of that timber land that must be deducted. What is our situation? In twenty years, at the rate we are going, not one sawing stick will stand in the State of New York; and we are even now getting eighty-eight per cent of our pulp wood from Canada, even if our good friend does insist that some lumber goes back to Canada.

What is the remedy? That is the question. We cannot take it out in resolutions and talk; we have to do something.

We have to get out, every mother's son of us that has an acre of land that is not good for agricultural purposes, and plant trees. It will not do to set land aside to the National Government and the States as forest reserves alone; we must economize in every way possible; but above all we must plant trees.

Germany has planted trees for a thousand years, and all of its forest is a planted forest park. The German people produce one hundred thousand feet board measure upon a single acre. The best timber in this country, East and South and West, until you get to the great trees of the far West, will not run over twenty thousand feet to the acre. We have got to be practical. We have got to use common horse sense.

What ought you Governors to do? Allow me to speak just as plainly as I can, in the Western New York way. Go home and establish a Commission, if you have not done it already and put a Pinchot at the head of it. Then furnish it money, and don't get down on your knees, or anywhere else, and implore the National Government to set aside some State land as a National forest; do it yourselves.

You may kneel at the shrine for years and you won't get it done. The way to do it is to do it yourselves. It is in your own hands. Get a little State forest preserve. And then handle it freely. Don't do it as we are obliged to do under the Constitution of the State of New York; that is, let it stand here and rot and burn up, and not be able to take out a single stick. Be practical about it! Build some tree gardens and put the last dollar into it that you can raise. Plant every year some millions of pine trees. Hard woods reseed themselves; they come up from the sprout; but the coniferæ in this country must be planted, as every practical man knows. You sweep away a pine or a spruce or a hemlock forest and it will never grow again; those trees must be planted. In Canada and some other places it does reforest pretty well, but not in our country. Be practical. Don't

do so much wishing and resolving, but do business.

The next thing you want to do is to go among your people; go out as missionaries among the people. Do not get it into your heads that all of our people, and even our legislators, know about this business, for they don't know about it. None of us have known much about it except for a few years.

In 1885, in the State of New York, the first Commission in the United States was organized. At that time not one single educated forester lived in the United States, not one forestry school existed at any college of the United States. Twenty-three years ago! And it took us twenty years to do the preliminary work, and it is only within the last three years that we have aroused the whole people in the State of New York. How did we do it? We got out among them, at their homes, and made speeches; told them of the wonderful cut of timber, and the great amount it was over the natural production. We told them of the history of China, and of France, and of the other countries, where the timber has been swept from the hillsides and the land denuded and made worthless for agricultural purposes, as the Governor from California told us about a moment ago.

You cannot have a country worth living in without forests, and the proof of it is the history of the whole world. You cannot have water flowing from the uplands without forests.

You are talking about conserving forests. New York City has spent $150,000,000 to build a reservoir at Kingston to get water for the four million people in the City of New York. If New York City does not protect the trees upon those historic hills, the Catskills, that reservoir will have been built in vain, and they will have to go somewhere else for their water supply. Why? Because, when you destroy God's reservoir under the trees, man can never build one as good. It takes that natural reservoir to keep and hold the water, and you can only keep that on the hillsides by keeping the trees there.

Someone in the report of this Commission has said that there is as much water as there has ever been, and that we could not create water. Those men that drew the original report of this National Commission are mistaken. You let a spring dry up on a mountain side because you have taken the trees away. That water is gone. It has gone from thousands of our springs today. But you reforest that hillside and you will reproduce the water. Those springs dry out because the forests are gone, but you reforest the hillsides and the water will come back.

There is too much to the subject for any man to undertake to cover it in ten minutes. You have to have forests in the country, ladies and gentlemen, because of a hundred things. First, it affects the climate. It affects the rainfall. It is valuable to the agricultural industry.

Without forests, in a rolling State like New York, or like Pennsylvania, you cannot have producing agricultural land. Am I not right? If water is not absolutely necessary to good farm lands, tell me why it is that the arid lands of the West do not produce without it. Tell me why it is that that far-famed, beautiful valley of the Euphrates, that we have heard so much about in song and story, that was once as beautiful as a dream, because of its forests and streams, is today a howling waste? Simply because the forest trees were cut away and the waters dried up.

You must have water. You must have the forests in order to have the water.

Now, hear me. You men from Kansas and from Ohio, and from Indiana, or any level State, do not need the forest trees for agricultural purposes so much as we do in New York and Pennsylvania and the East. Why? Stop and think. In New York State all but four of the great rivers of the State head in the Adirondacks and Catskills, in that two thousand feet high upland plateau. The streams, when not protected, run rapidly away and the water is wasted. It does not even have a chance to evaporate. But on the level plains of Kansas it falls upon flat land and it soaks into the ground; it saturates the soil, it produces moisture necessary for weeks and for months, for the crops to grow upon the land.

We of the East must have the forests. You can get along out there if you don't have so much forest.

So it is rather a local question in respect to the farm lands of the country. We have got to have forests because of their effect upon the healthfulness of a country. Do you not know that the forest trees are constantly pouring off into the air great quantities of oxygen; that they take up the things that are poisonous to your life and grow upon it, and that they furnish that which we must have? Do you not know that they have a wonderful effect upon the temperature of the country? Can anyone tell me why it is twenty-five degrees cooler in July at Lake Placid or Saranac than where I live in the Alleghenies, in the same altitude, two hundred miles further south? For no reason in the world except that splendid forest that covers the upland in the northern part of the State of New York.

Let me make it perfectly clear to you by the simplest illustration. If forests are not as valuable as I say to a country, what would be the condition if today, through some great force in nature, every tree and shrub should be swept from the face of Pennsylvania or New York State? Would not chaos reign tomorrow? Would not the home of every wild bird and every wild animal be destroyed? Would not every stream be uncovered? Would not the surface of the land be like the roof of this building, for the water to fall on it and run immediately to the stream and down to the great sea and be lost forever? Would not the price of agricultural land in those two States depreciate in

fifty minutes fifty per cent? If it would not, then the history of China is a lie; then the history of France is false. Three hundred years ago France swept the forests from its hillside, and its soil was eroded and washed into its harbors. If what I say is not true, then France has spent $200,000,000 since then to reforest its mountainsides for nothing.

The country that does not have forest growth is like a house without a roof—uninhabitable and worthless to the people.

You may talk about preparing your Mississippi for transportation of the products of the country. You may talk about the conservation of your coal and iron and gas and oil and all that. Coal, iron, gas, oil and other minerals are only created once in the creation of the world, and all you can do is to handle them as carefully and as economically as you can; you cannot replace a pound of them. But your forests—the great objective point, it seems to me, in these splendid conferences we are having—must be saved, and you can only save them by careful handling and by planting.

Now, go home, and get your legislatures to furnish the money. Build your tree gardens. Go amongst the people and relieve their land, that is dedicated to forests upon the farms, from taxation. Encourage your people. Give them the trees free. Let the State furnish its people with the trees free of charge in order to encourage them, and then relieve them from taxation on the land dedicated to the forests, and you will get every farmer to raising trees.

Think of what we in New York are doing. The pioneer in the work, twenty-three years old. Held up sometimes as an example. We are doing a lot of things that we do not ask the National Government to help us in. We know we would not get its help. We are going to take care of it ourselves. We are spending $500,000, $600,000, $700,000, $800,000, $1,000,000 a year in buying land, and we are going to keep it up.

Get your farmers to planting trees. We are building tree gardens all over the State, raising millions and millions of pine trees. We don't plant the poor kinds of trees. We get the best commercial tree, that grows the fastest. The hardwoods will take care of themselves if we let them alone and keep the cattle out. Plant pine trees, plant spruce trees, plant in the South the tree that grows the best there and is the best commercial tree. But you have all got to plant.

What are we doing? Every Christmas we are cutting off two million conifer trees, and the State last year planted one million nine hundred thousand of them. So we went back one hundred thousand trees last year in that respect. As I have said, our State is the pioneer in this. We are asleep in America on this question. We have to get practical and get down to business and plant trees or in twenty years our children will curse us for our negligence.

Mr. Whipple's address was so frequently interrupted by applause that the continuity of his remarks was somewhat broken. At the conclusion of his talk Governor Johnson arose and asked for time to interrogate the speaker. He asked that he be enlightened as to the remedy for existing conditions. He said:

"Plant trees! I heard that last May, at the White House Conference, until I was black in the face. I have heard it out in my part of the country for the past ten years! This thing of planting trees is all right. We have got to plant the trees; but the Governor does not own the farms of the people of the State of Minnesota any more than does the Governor of the State of North Carolina, or any of the other Governors. He cannot go home and make the legislature do whatever he wants with the public moneys of the State, because the legislature in the State is the custodian of the public moneys and that is true in every State in the Union.

"We want these discussions; we want all the information we can get on this subject, and I was very glad that the last speaker mentioned the matter of exemption from taxation of forested lands as means for encouraging the planting of trees. It is about the only reasonable and practical suggestion I have heard here.

"With regard to the matter of forestry, I think there was offered at the White House Conference last May the best suggestion that has been made, either here or there. Unfortunately it introduces a political question. But are we going to avail ourselves of the vast areas of Canada, by reciprocal trade relations, or are we going to continue the barrier in the way of an imaginary line, which will not permit us to bring in Canadian lumber as a means of protecting our own timber supply?

"I know full well that there are men here attending this Conference who are personally interested in the manufacture of lumber in the United States, and

who are doing all they can to make this country continue to refuse to take any action that looks toward the bringing together of the great interests of Canada and the United States, and I hope the Conference will be big enough to look clear over the heads of any men who have a personal and selfish interest.

"I would be glad to have the suggestion of a specific and definite remedy. In my judgment we must retrace much of the ground we have already covered—and lost. I know something of the preserves where ten per cent of the trees must remain, and in my judgment, Mr. Pinchot, that remedy is an absolute failure, because the ten per cent., lacking the protection of the surrounding trees, either die, break down or eventually give way.

"It seems to me that it would be better to preserve great tracts of timber. But there is so little that any of us know—even, I think, the gentleman from New York, who failed to name a specific remedy—that we ought to be willing to learn; and I would like to take home with me one great idea and say to the legislature, 'Do that!' If the gentleman from New York will give me the opportunity to do it, I shall be his servant forever."

The speaker was compelled to wait several minutes, until the applause died out, when the session was, for a time, turned into a sort of joint debate between Governor Johnson and Commissioner Whipple, the chair at times taking a hand in the discussion. The discussion continued for some time, and during the talk several interesting points were brought out, that perhaps would have been overlooked but for Governor Johnson's insistence upon something specific.

Following short talks by Governor Blanchard, of Louisiana, Professor Rene, chairman of the Massachusetts State Conservation Commission, and others, the session adjourned.

(To Be Concluded in February Number.)

THE RIVERS AND HARBORS CONGRESS

Fifth Annual Session, Held in Washington, D. C., December 9, 10, 11, and 12—Five Thousand Delegates Present Congressional Support Pledged

THE fifth annual session of the Rivers and Harbors Congress was held in Washington, at the New Willard Hotel, December 9, 10, 11 and 12. Five thousand delegates were in attendance, among them many of the Governors and others who were in Washington for the Joint Conservation Conference; and more actual work was done, bringing into view more tangible results, than at any session of the Congress yet held.

Among the speakers were some of the most widely known men in the public, political and scientific life of the United States; and one of the most interesting talks of the three days' session was that by Ambassador Bryce, of Great Britain. Vice-president Fairbanks, Andrew Carnegie, Samuel Gompers, Bishop O'Connell, Governor Chamberlain, of Oregon, Seth Low, of New York, Senator Higgins, of Delaware, Speaker Cannon, Joachim Nabuco, ambassador from Brazil, Senator W. C. Edwards, of the Canadian parliament, Governor Dineen, of Illinois, Senator Owen, of Oklahoma, Governor Broward, of Florida, Hon. James Wilson, Secretary of Agriculture, J. Horace MacFarland, president of the American Civic Association, and others, made up the distinguished list of speakers who addressed the sessions of the Congress. Representative Joseph E. Ransdell, of Louisiana, president of the Congress opened the sessions. In his opening address President Randsell stated that the time has come for immediate Congressional action, as the people of the country demand that the Nation's waterways shall be improved at once.

"Practically the entire press of the country has favored us," he said; "and thousands of articles advocating our cause have been printed in every section of the land. And yet the definite results we have in view are still far from attainment. In spite of the fact that at the last session of Congress there was not a dissenting voice, the session closed without the passage of a rivers and harbors bill, and we have, so far, no positive assurance of any better treatment at this session. I am convinced that we should insist in the strongest manner possible, on the prompt passage by Congress of an adequate rivers and harbors bill, and on the commitment of Congress to a broad and liberal policy of internal improvement, that will carry an annual appropriation of not less than fifty millions of dollars."

President Randsell fell in line with the ideas of President Roosevelt, as advanced at the Belasco Theater meeting opening the Joint Conservation Conference, when the President declared for a bond issue sufficient to cover the cost of the work. He also advocated the plan of appointing a commission of nine members, to study our inland waterways and to suggest to Congress plans for improving them.

Vice-president Fairbanks, the next speaker, also lined up with the advocates of the bond-issue idea, saying that, as a large part of the benefits accruing from a comprehensive plan of internal improvement would fall to future generations, a reasonable share of the cost of the work should be borne by those generations. He believes, he said, that the importance and the magnitude of the work of improving the waterways of the country are so exceptional that the country will be fully justified in anticipating future income

by a reasonable and adequate bond issue.

Ambassador Bryce, following the Vice-president, spoke of the program of internal improvement, as to waterways, that is being carried out in England. He said that ultimately the improvement of rivers and canals, instead of being inimical to railroad interests, would be found to have been of benefit to them. In conclusion he said:

"I need hardly say that the circumstances of continental Europe afford more to you in the way of practical suggestions than England can supply, and I would specially recommend to you the splendid system of internal navigation that has been created in Germany. The Rhine now carries an enormous traffic, although on each side of it run trunk lines of railways.

"Nature has given you a larger river system than exists anywhere else in the world, except in the tropical forests of South America, and in the consideration of the great plans to which your attention is now being called, you will have the interest and sympathy of every one who feels that this superb gift of nature ought to be turned to the utmost advantage for the development of the unqualified natural resources which your country possesses."

The last speaker of the morning session was Andrew Carnegie, who promptly "made good" with the Congress by declaring his advocacy of the bond-issue plan. He said that not even the strictest constructionist could logically object to the improvement of the inland waterways by the Nation, and he warned those present, as well as the entire country, against the consideration of sectional projects, saying that plans of Nation-wide scope are needed.

At the afternoon session the report of the credentials committee was presented, and after the transaction of some routine business the Congress quickly got down to work. Judge George Hillyer, of Atlanta, Ga., was the first speaker, his subject being "Overland Canals a Necessity." He said that in Europe great freight blockades have been done away with by a proper division into water and rail freight of traffic. The transportation problem, he said, has been solved by shipping bulky and non-perishable freight by water, while costly freight goes by rail.

"Given the canals, rivers, and water routes," he said, "by which the bulky, cumbersome, and heavy freights can be shipped, the situation in any freight blockade would be at once relieved and the recurrence of the same evil at once prevented. It is true that if enough money were spent on the railroads they could be so increased in capacity as to meet the present needs, but that would involve an expense of $50,000,000 for immediate needs, with no guarantee for the future, whereas one-fifth of that sum, judiciously expended in the improvement of the rivers and harbors and in the construction of canals, would solve the problem."

Following the appointment of the committee on resolutions, with George E. Smith, of Boston, as chairman, and the committee on nominations, of which the chairman was John L. Vance, president of the Ohio River Improvement Association, Samuel Gompers, president of the American Federation of Labor, addressed the Congress.

"The men of labor," he said, "are deeply interested in the improvement of the waterways, and as far as we can help in the general result we are with you from now on. The men of labor never have joined in the howl against the railroads and other combinations of industry, but we realize that the building of a railway extends to it the right of way without any competition over the same railway, while on the other hand the improvement of a harbor, the digging of a canal, or the deepening of a river gives an equal opportunity to every man in the country.

"In the great works of National character the American workingman should have an opportunity. So far as it is possible, let American labor and American material enter first into these great National schemes. I would

patronize the American manufacturer, and I would employ the American laborer, and give them a chance before I turned to any one else.

"We should make for the arts of peace," he said, "rather than for the arts of war, and devote more time to the schoolhouse than to the arsenal and the navy yard."

The next speaker, representing the great Pacific Northwest, was Gov. George E. Chamberlain, of Oregon.

The speaker said that improvement of the waterways was no longer a political, but had become an economic question, and he then read from both the Democratic and Republican platforms planks pledging these parties to river and harbor improvement.

He reminded the audience that the President and the next President also had expressed themselves strongly in favor of a plan of improvement, and said that if out in his country a Congressman voted against a good plan for waterways improvement, he need not come back expecting to be re-elected.

Governor Chamberlain said that the Northwest had no pet scheme to propose, but was for a general plan, believing that the improvement of any of the great waterways would be for the benefit of the entire country. Nor would the Northwest, he said, oppose any plan for the improvement of a river because that plan might happen to greatly benefit some local interest somewhere else.

Former Mayor Seth Low, of New York, spoke of the importance of steam hauling of freight by water, saying that the Erie Canal fixed the rate on every pound of freight going from New York City west of the Alleghenies. He emphasized the necessity of planning and completing the work of developing our inland waterways promptly, and decried the shortsightedness of dragging the work out when it can be better and more effectively done in a shorter period of time.

Ex-governor Saunders, of Louisiana, spoke of the Mississippi River as it affects his own State, more particularly, and told of the enormous sums that are spent yearly in holding the river within its banks, and in providing for the needs of navigation.

Representative Champ Clark, the next speaker, aroused great enthusiasm by his statement that Congress stands ready and willing to support with adequate appropriations any comprehensive and feasible plan for waterway improvement.

"To say that Congress is opposed, or ever was opposed, to rivers and harbors improvement, he said, "would be to dub us all a lot of idiots. There has been talk enough about this going on for a long time, and now the time for action has come. I began making river and harbor speeches and listening to them seventeen years ago at Denver, and I have been keeping it up ever since."

Mr. Clark described the great resources of his own district, and said no section of the United States needed water transportation more, and then he made the formal statement again:

"If you gentlemen will devise and present to the National Congress a feasible and comprehensive scheme, and one that will take in the entire system of rivers and harbors of the country, I firmly believe that Congress will enact it into law."

An address by W. D. Lyman, president of Whitman College, Walla Walla, Wash., concluded the session.

SECOND DAY'S SESSION

Speaker Cannon Declares Against Issue of Bonds for Waterways Improvement—Other Speakers Heard—Election of Officers

AT THE morning session of the second day of the Congress, Speaker Cannon, who made the principal address, created excitement and at the same time threw a chill over the enthusiasm by stating that if the Rivers and Harbors Committee reports a bill for a bond issue of a billion dollars, for waterways improvement, he will not vote for the bill or give it his support. The Speaker's statement, coming as it did after repeated declarations from men high in public life, all favoring a bond issue, cast a decided damper upon the Congress.

Former Senator Anthony Higgins, of Delaware, was the first to address the Congress, his talk being along rather conservative lines. He announced his advocacy of the Atlantic deeper waterway plan, but said that careful consideration must be given to all plans for internal improvement before any definite action can be taken.

President Ransdell then announced that he would introduce the man who could give more help to the project of deep waterways and good canals than any man in the United States, not excepting either the President nor the Vice-president. He then introduced Speaker Cannon.

The Speaker said that possibly what he would say would come as a disappointment to some of the delegates. "But at the close of the short session," he said, "you may say that at least one Representative did not lie to you." He said that he voted for the rivers and harbors bill in 1883, which was vetoed by President Arthur, and came near being defeated for reelection on account of it.

He said that he was firmly in favor of the improvement of the rivers and harbors of the country. Continuing, he said:

"I have no doubt that some of these people who, a quarter of a century ago, tried to stamp out my political career for voting for the river and harbor bill in 1883, over the veto of President Arthur, will say that I am a reactionary—a kind of fly in the ointment—and that I stand in the way.

"Talk is cheap, but action is another thing. But we want to go slowly and to have the work done sanely and safely. If in the construction of the Panama Canal we had omitted to have a safe project and a well defined policy, the entire civilized world would have been laughing at us."

He said that he felt sure he would give his support to any river and harbor bill reported to Congress by "that practical and safe man, Chairman Burton, of the rivers and harbors committee."

"If we enter upon policies faster than we are ready and expenditures are extravagant, there is not one of you that would come out and take the stump in my district," he continued.

"Now, what I mean to say is that I agree with you that the great waterways of the country and the rivers and harbors should be efficiently improved. There are twenty-five persons to the square mile in the United States. When we are thickly settled, as in Europe, there will be 500,000,000 people in this country, or 125 to the square mile, and from this time to that time,

as we can safely and sanely do the work, the work that is necessary to carry on our great internal commerce and foreign commerce, I have no doubt that, conservatively speaking, we will have expended from $15,000,000,000 to $20,000,000,000.

"Now, nobody here wants Congress in the next sixty days to commit this country to an expenditure of $20,000,000,000, and for this purpose to issue bonds. I am always in favor of the United States paying its debts, and if it is necessary for its great work in peace or war, I stand ready to say, Issue bonds. But expenditures must be safe and sane. I would not want to do this work or any other work, except as it can be sanely done."

Speaker Cannon said that, after all, legislation was a matter of compromise. He said he believed ultimately there would be a fourteen foot channel from Chicago to St. Louis, and personally he favored it. But, he said, when action was taken to consummate this project, there would be gentlemen here with "flaming brands to get something for the Ohio River, and some to get something for the Missouri," and for other projects.

"I am not saying that these improvements ought not to be made. I am saying that we would not be practical, safe and sane to embark upon them now.

"I am not ready to do so. I want to be entirely frank with you. If it were possible, and I do not regard it possible, that the rivers and harbors committee, and we have to follow the lead of the rivers and harbors committee, should report a bill to Congress providing that there should be issued bonds for the next ten years, year by year, to meet the expenses of these projected improvements, I would not vote for it."

Following Speaker Cannon's address, Senor Joachim Nabuco, ambassador from Brazil, spoke to the Congress. Other speakers at the session were: Secretary of the Interior Garfield, James W. Van Cleave, president of the National Manufacturers' Association; Hon. J. A. Ockerson, of the Mississippi River Commission; James Rawlins, representing the Commercial Travelers of America; Calvin Tompkins, of the New York Board of Trade; Frederick Skene, state engineer of New York; Gov. Charles S. Deneen, of Illinois; Representative J. T. Lloyd, of Missouri; Senator Robert L. Owen, of Oklahoma; Col. C. P. Goodyear, of Georgia, and others.

The report of the committee on resolutions, in its report, made a number of strong recommendations, all of which were adopted by the Congress at the session of December 12.

These resolutions provide, first, for a bond issue of $500,000,000 for the improvement of the interior waterways of the United States, to be issued on the same lines as those of the Panama Canal bonds, the money to be available when necessity demands.

Second, they call upon Congress for immediate action in the way of appropriations to complete certain work already begun, and to inaugurate new work as recommended by the board of army engineers. Third, they demand a liberal appropriation for continuing contracts on rivers and harbors during the present session of Congress.

The resolutions then empower the appointment of a committee of Congress to draft bills for introduction, first, to provide for a bond issue, and, second, for a commission to study waterway conditions abroad, in order that the very best plans for foreign waterway improvements may be used by the United States in its treatment of its own waterways.

The following officers were elected, most of them being reelections:

President, Joseph E. Ransdell, of Louisiana; secretary and treasurer, J. F. Ellison, of Cincinnati. Directors: Atlantic seaboard, William H. Lincoln, Boston, Mass.; Olin J. Stephens, New York; J. Hampton Moore, Philadelphia; Frank D. La Lanne, Philadelphia; Rufus K. Wood, Baltimore, and Herbert C. Warren, New Haven, Conn. South Atlantic Seaboard, D. U.

Fletcher, Jacksonville, Fla.; E. J. Hale, Fayetteville, N. C.; L. B. Dozier, Columbia, S. C.; W. B. Stillwell, Savannah, Ga.; Charles Swift, Columbus, Ga., and John C. Freeman, Richmond, Va. Gulf seaboard, T. G. Bush, Birmingham, Ala.; M. J. Sanders, New Orleans; S. Taliaferro, Houston, Tex. and Lee Estes, Texarkana, Tex. Entire Mississippi valley district, Gov. J. A. Johnson, St. Paul, Minn.; Thomas M. Wilkinson, Burlington. Iowa; W. P. Kennett, St. Louis, Mo.; W. K. Kavanaugh, St. Louis, Mo., and Charles Scott, Rosedale, Miss. Great Lakes District, Edward T. Wyler, Chicago, Ill.; George T. Eichelberger, Chicago, Ill.; James H. Davidson, Oshkosh, Wis.; Robert A. Downey, Oswego, N. Y.; E. W. Wickey, East Chicago, Ind.; H. C. Barlow, Chicago, Ill.; Edward H. Butler, Buffalo, N. Y. Ohio valley district, W. B. Rodgers, Pittsburg, Pa.; Henry Reisenberg, Indianapolis, Ind.; Albert Bettinger, Cincinnati, Ohio; John L. Vance, Columbus, Ohio; W. H. Keller, Evansville, Ind. Tennesee and Cumberland district, M. T. Bryan, Nashville, Tenn.; J. A. Patton, Chattanooga, Tenn. Arkansas valley district, John A. Fox, Blytheville, Ark. Missouri valley district, I. P. Baker, Bismarck, N. Dak.; Lawrence M. Jones, Kansas City, Mo. Pacific coast district, N. G. Blalock, Walla Walla, Wash.; A. H. Devers, Portland, Oreg.; George C. Pardee, Oakland, Cal.

The night session was characterized by several strong speeches. Among them was one by Gov. Broward, of Florida, who said the people should say to Congress:

"You do not have to pay the bill, and we do; therefore, we demand that this work shall be done."

The session was closed with a finely illustrated lecture on waterway improvement and beautification, by J. Horace McFarland, of the American Civic Association.

THE ANNUAL MEETING

ANNOUNCEMENT has been made in the two preceding issues of CONSERVATION of the 28th annual meeting of the American Forestry Association. This will be a very important gathering of those interested in forestry. Great issues are pending. We are just beginning one of the greatest educational movements of American history—that of the better use and conservation of our natural resources. The program of the meeting, while not arranged in all detail, is far enough completed to warrant the statement that its educational value will exceed that of any other meeting ever held by the Association, unless, indeed, it be the memorable Forest Congress held in 1905. No person interested in forestry as a National question, and especially no one concerned with the care and use of the forests, can afford to miss this meeting.

The sessions will be held in the Red Room, on the ground floor, of the Willard Hotel, as for the past two years. Sessions will be held at 10 a. m., 2 p. m., and 8 p. m., January 13, and 10 a. m. and 2 p. m., January 14.

It is expected that the morning session on January 13 will be opened with an address by Hon. James Wilson, Secretary of Agriculture, and President of the Association. A condensed report by the Board of Directors on the Association's work during the year, and also the report of the Treasurer and the appointment of committees will follow. This business, which in the past has taken a large part of the morning session, will be much curtailed. Another address of great importance which it is expected will be given at this session will be by Mr. Gifford Pinchot on "The Meaning of the Conservation Movement." All readers of CONSERVATION familiar with the work done by Secretary Wilson in the advancement of agriculture in the United States in the past twelve years, and with the work of Mr. Pinchot during almost the same period in developing a National system of forestry, and more recently in the leadership of the movement for the conservation of natural resources. These two addresses will set a high standard for the meeting. Following them, in accordance with the past custom of the Association, will occur a number of brief addresses by prominent members and visitors.

The afternoon session will be devoted to the subject of "Forest Fires and Their Control." The first address will be "Forest Wealth and Fire Losses." Other addresses of this session will be on "Problems Connected with the Handling of Cut-over Lands," and "Lumbermen's Fire Protective Associations," such as have been organized and successfully maintained in some of the Northern States during the past year.

One of the most important features of this session will be a synopsis of legislation and practical work necessary for the control of forest fires. This synopsis will be presented by a commission which has already been appointed, consisting of the following men: Prof. H. H. Chapman, of the Yale Forest School, Mr. J. S. Whipple, Forest, Fish and Game Commissioner of New York, Dr. J. T. Rothrock, Pennsylvania Forest Reservation Commission, Mr. Alfred Gaskill, State Forester of New Jersey, Dr. C. A. Schenck, of Biltmore, N. C., and Mr. W. T. Cox, of the Forest Service. All of these men have had wide experience in dealing in a practical way with the fire problem, and their report will undoubtedly be the most mature presentation of the subject up to the present time. In all probability a

definite program of principles will be advanced for the Association to consider and possibly adopt.

An especially attractive program has been arranged for the evening session of January 13. The first address will be given by Hon. John E. Ransdell, Representative in Congress from Louisiana, and president of the National Rivers and Harbors Congress. Mr. Ransdell will speak on "Forests and Inland Waterways." Representing as he does a great National organization for the improvement of the waterways, an organization which represents a policy, not a project, Mr. Ransdell's address will be of especial importance. The other address of the evening will be an illustrated one by Mr. Bailey Willis, of the Geological Survey, on "Some Results of Deforestation." Probably no other man in America has studied the question of erosion as broadly and as deeply as Dr. Willis. He is not only familiar with the problem as it affects almost every section of our own country, but has studied the subject in Europe and Asia. His illustrations will be drawn in large part from these countries.

The morning session on January 14 will be devoted to the subject. "State and National Forests." An important address of this session will be on "The Government, the State, and the Individual in Forest Conservation." Other papers to be presented by prominent speakers at this session will be on the White Mountains and the Southern Appalachians. There will be a commission report at this session on "Principles in the Acquirement and Management of State Forests." Some of those appointed on this commission are: E. M. Griffith, State Forester of Wisconsin, Prof. Filibert Roth, professor of Forestry, University of Michigan, H. S. Conklin, Commissioner of Forestry of Pennsylvania, F. W. Beasley, State Forester of Maryland, and P. P. Wells, of the Forest Service.

The concluding session will be held January 14 at 2 p. m. on the subject of "Forest Education," and will be one of the most important sessions of the meeting. Some of the subjects to be presented will be the "Forests and the Industries." "The Press as an Aid to Education in Dealing with Forests and Other Resources," "Forestry and the Public Schools," and "Federal Appropriation for Teaching Forestry." Among those who are expected to give addresses are: Senator Beveridge of Indiana, Dr. Albert Shaw of the *Review of Reviews,* Prof. W. N. Clifford of Philadelphia, Prof. H. S. Graves of the Yale Forest School, and Prof. S. B. Green of the University of Minnesota.

Near the close of this session will come the report of committees, election of officers, and such other business as the Association may desire to consider.

EDITORIAL

The Conservation Conference

PROMISE of great and lasting good is contained in the report of the Joint Conservation Conference, and in the reports of the four sections into which the National Conservation Commission is divided. Up to the present time the program of conservation of natural resources has been chiefly educational. Most persons who take an interest in the work have begun asking what the Commission is likely to accomplish in practical results. Everyone is agreed upon the proposition that the conservation of the Nation's natural resources is of the greatest and most vital importance to the welfare of the country and to its continued prosperity; but it is equally true that people believe it is time to do something more than hold conventions and furnish newspaper and magazine material. The general public believes that those who are behind the conservation movement should presently give to the lawmakers some definite plan, at least, for beginning the great work about which so much has been written and spoken. The educational work of the conservation movement has gone forward with more enthusiasm and less interruption since the organization last June of the National Conservation Commission than ever before. The establishment of this commission was really a welding together of activities along several closely inter-related lines—a new organization of the broad and rather incoherent movement for inland waterways improvement and conservation of natural resources.

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Organization of the Commission

FOLLOWING the conference of the Governors at the White House last May, President Roosevelt merged the Inland Waterways Commission, created by him in March, 1907, into the National Conservation Commission, it forming the Section of Waters of the new body. The remaining three divisions are those of Forests, Minerals and Lands. Chief Forester Pinchot is chairman of the Commission, and Thomas R. Shipp is secretary. The first work of the Commission was the inventorying of the resources of the country—a task which occupied the time of hundreds of able men during the whole of last summer and fall. The result of these herculean labors—labors performed, as the President says, without thought of personal inconvenience or personal advancement or profit—is contained in the report to be submitted to President Roosevelt, and which will be transmitted by him to Congress within a short time. It is not wide of the mark to say that never in the history of this or any other nation, has a statement so valuable been compiled and prepared; never in the world's history, perhaps, has any nation known with such definiteness just where it stands with regard to natural resources. No generalization; no flights of fancy; no stupendous statement with nothing tangible to back it up. Instead, the facts are there, in dollars and cents—the board feet of lumber, the tons of coal, the acres of land, the horsepower of waters, the cubic feet of natural gas, the barrels of oil—all these are set forth, in figures and statement, in the plainest of English, in the report of the Commission. It might be said that, even if the Commission does no single other act, its existence would be fully justified by the work it has done during the months just past.

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Definite Work Ahead

THIS report and the reports of the four sections, were presented to the Joint Conservation Conference, composed of the members of the National

Conservation Commission, the Governors, their advisers, the members of State Conservation Commissions, and representatives of the great State and National organizations, at the conference held in Washington on December 8, 9, and 10. Speeches, addresses, papers, discussions and arguments there were in plenty at that conference, and out of the mass of manuscript, out of the volume of discussion and talk, has come the germ of action. Ideas that have all the elements of practicality were advanced, and recommendations were made which, followed to a conclusion, means the actual beginning of work, and that at no far-distant day. The period of propaganda is past; the preliminary education of the thinking, doing portion of a great nation is complete, and now the time has come when we, as a people, shall demonstrate to the world our fitness and our right to the adjective "great."

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The Way Out

THE chief objection urged by those opposed to putting into effect a policy of conservation, with its concomitants of internal improvement. closer relations between the States and the Nation and an apparent broadening of Federal power and authority, has been the cost. But this objection can no longer be urged successfully, as has been the case in the past. President Roosevelt went to the heart of the matter in his speech at the Belasco Theater, when he said:

"Pay for these (internal) improvements out of current revenues, if possible, but if this is not possible, issue bonds."

The President referred to inland waterway improvement more particularly, but the permanent improvement of our inland river system, so as to fit it for navigation and traffic, involves every other branch of conservation work. Rivers may not and cannot be permanently improved without the maintenance of forests at their headwaters to protect the river sources and to keep from the streams the silt and sand accumulations that cut channels, build bars and make dredging a constant necessity. Other things are necesary, it is true, if this work is to be permanent in character; but forest protection and reforestation are of vital importance, as, without them, no work of this kind can be made permanent and enduring. The forests are the keystone of the arch of conservation; upon them rest largely the other stones that go to make the complete structure. Save the existing forests and create new ones, and then the rivers can be made permanently navigable. At the same time soil erosion will be largely prevented; and, by navigating the rivers and building canals, the principal drain upon the coal and iron resources of the country can be reduced. And the answer to the question, "How may we do these things?" is contained in the advice of the President—"Pay for what we can and then issue bonds!" This is the way out; this is the way to begin and to complete the work.

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Magnitude of the Undertaking

THE most thankless task a statesman is called upon to perform is to advocate a bond issue in time of peace; and no other single thing, perhaps, is a more infallible indication of true statesmanship than the ability to recognize the necessity for issuing bonds under such circumstances, and boldly pronounce for their issue in the face of public disapproval. Thus, at the very outset, the task before the Nation becomes a stupendous one, because of the fact that a tremendous inertia, in the form of deep-grounded prejudice, must be overcome before the initial impetus can be given to the work. The opposition to a bond issue commensurate with the magnitude of the work will be both loud and long-continued, but the utterances of those who possess the ability to see beyond the narrow confines of to-day will certainly be as loud, and their approval as hearty, so that the fact that opposition is certain need not give pause to the work. If half a billion of dollars is

required then let us have that amount, and as we need it; if more, let us have more. If the interior of the country is to have a network of navigable rivers and canals, whereby to relieve the congestion of rail traffic and reduce the cost of transportation, the result will be worth all it costs. And the bonding of such an enterprise is the proper way in which to finance it. This plan of improvement, if it is worth the breath that has been spent on it, must be permanent. It must not be for to-day or to-morrow, but for the centuries to come. If this is true—and that it is true not one thinking man will for a moment deny—why should we of to-day bear the whole cost? Why should not our children, and our children's children, and all the generations of men to come, have their share in payment, as well as their vastly greater share in benefits? Not one single logical, tenable argument can be advanced in support of the negative. The proposition, while of first magnitude, is essentially of the simplest nature. It means just this: Issue bonds for whatever sums may be needed, and as they are needed; then, after due preparation, convert our at present useless rivers and waterways into a network of navigable streams, reaching from the Allegheny Mountains on the east to the Rockies on the west, and from the Lakes of the north to the Gulf of the south. Prepare these waterways for the fullest use as means of transportation for all our heavy traffic, thus relieving the railroads and lessening the drain on our coal and iron deposits. *And make the work permanent.* A mighty undertaking, but one with every element of simplicity, as is the case with most ideas that are truly great.

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Not a Political Question

THIS is not a political question. The conservation movement is the one great question that is not in politics. Both the great parties stand committed to it in their latest platform declarations, and, fortunately, there seems no indication of the injection of politics into any Congressional debates on the subject. In the words of President Roosevelt, in that memorable address of his at the Belasco Theater, "If an appropriation for internal improvements is to be made a part of the political 'pork barrel'—if every Congressional district is to receive a share, regardless of whether it has any streams to improve, then it were better to stop before we begin." But it is inconceivable that such a view will be taken of the question—that any man will be so blind to the broad, actual needs of the Nation, as to consider an appropriation for such a purpose merely a more ample Rivers and Harbors appropriation, to be divided up according to the demands of constituents and without regard to the necessities and the fitness of the case. It is simply a question of the greatest good to the greatest number for the longest time—there isn't a shred of politics anywhere about it.

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A Noble Legacy

JUDGE TAFT, in his address at the Belasco, joined with President Roosevelt in advocating the issue of bonds for permanent internal improvement. He said that it would be a good thing for the sons and the grandsons of the present generation if we of to-day leave them a legacy of debt—debt incurred in developing an adequate system of waterways and great, permanent internal improvements, that will outlast the centuries, and grow more valuable with the passing of time. And Judge Taft spoke truly. Suppose we do leave to the generations to come this legacy of debt; and suppose that we also leave to them at least the substantial beginnings of a system of waterways that will be adequate to handle at vastly reduced freight rates, all the heavy traffic of the country; will those generations not rise up and bless the foresight of the men who were able to plan and to carry out the scheme? On the other hand, suppose we continue to trifle with the mat-

ter; suppose we put off and procrastinate, sinning away our day of grace, and leaving the land impoverished, tax-ridden, sterile, barren, devoid of forests, with diminishing streams, the sport of floods and inundations; what then will those who come after us say of the generation of to-day? Can there be more than one answer?

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The Work Will Be Done

BUT there will be, let us hope, no more procrastination; no more temporizing, no more placating of divergent political factions. The work will be done. We shall set about developing our waterways; we shall set about caring for forested uplands, reforesting devastated areas and protecting the sources and the banks of the streams. We will make channels in the Missouri and the Mississippi, and the Ohio; in the Tennessee and the Wabash, and in every river that is capable of bearing traffic and is needed for that purpose. We will in time construct storage reservoirs for the handling of flood waters, and we will construct canals—a deep waterway from the head of Lake Michigan down across the State of Illinois, into the Mississippi and thence to the Gulf. We will construct other canals, wherever the necessity for them shall be shown. We will have the coöperation of States and the Nation, because in that way the work will be soonest and best done. We will do these things, because they are the right, and the wise, and the logical things to do, and because we, as a people, have the wisdom and the foresight to realize that they are the right things. We need not wait for the preparation of a complete plan for internal improvement; we can begin on the work as soon as the people of this Nation say the word. There are things to do, as President Roosevelt said, that will fit in with any right plan, and we will do these things. We will make a start, and millions now living will see the great scheme well on the way to completion. And millions yet unborn will look back to this generation, and the men who lived in it with a reverence as great as, or greater than, that with which we regard the men who laid the foundations of our Nation. The work of the Joint Conservation Conference has begun to make ready the way. Let us prepare to walk in it.

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The Appalachian Matter

THERE rests with the House Committee on Agriculture a heavy and definite responsibility, and one which they can by no means evade, for in the hands of the eighteen members of this Committee lies the fate of the Appalachian-White Mountain Forest bill, carrying with it consequences of the gravest importance to the Nation and the Nation's future!

The hearing on the bill before the Committee on December 9th seems to show that this responsibility is not realized by the Committee, for questions asked, and suggestions made, serve to show that the "masterly inactivity" hitherto the Committee's leading characteristic, will be maintained if possible, and that if any action be had or is contemplated, it will be along lines that are totally inadequate to remedy the serious conditions, again so clearly and forcefully shown by advocates of this legislation. There is hope in the situation, however, although it may take an optimistic eye to see it, for the forest perpetuation idea has gained such ground as the thing that must be done, as a duty that the Government owes to itself, as a matter of plain common sense and common honesty, that we shall finally get, in spite of the lack of foresight at present existing in this Committee, not only the most complete preservation of the Appalachian-White Mountain region possible, but the preservation of forest areas at the headwaters of important streams wherever they may be constitutionally established, under a systematic and progressive forest policy to which the Nation will finally come.

To the Agricultural Committee of the House there is presented an opportunity of signally serving the whole Nation by promptly passing the Senate bill, or one equally as effective—of abandoning individual opinions and impractical plans based on incomplete knowledge or misconception of the forest and forest functions; of rising to the real level of patriotic and far-sighted statesmanship. Will they grasp the opportunity before it is too late?

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Speaker Cannon in the Open

AT A meeting of the Chicago Bankers' Club on Saturday, November 7, Speaker Cannon, if the press dispatches are to be believed, made an open avowal of his stand in regard to conservation as well as some of the other big policies to which the United States stands committed. A special dispatch from Chicago to the *Washington Herald* gives an outline of the Speaker's remarks. The dispatch follows:

Uncle Joe Cannon, speaking before the Chicago Bankers' Club Saturday, declared himself against the conservation of public resources and the expenditure of large sums for the completion of the Panama Canal. Before the speech was delivered newspaper men were requested to leave the room. Then the Speaker, declaring that they were all hard-headed business men, and not doctrinarians, said that the province of the Government was the protection of life, liberty, and prosperity.

"Let it perform those functions," he said, "then let every man take care of himself."

"There are great problems to be solved by the next Congress," said Speaker Cannon, "and they are not going to be solved by the emotional hysteria of the country."

Mr. Cannon referred to the canal first of all.

"This is not a time," he said, "for the expenditure of large sums of money for the completion of the Panama Canal. Discreet care should be used in the endeavor to build a deep-water way from the Lakes to the Gulf."

He said that great engineering problems were involved, and that they might be better left to future generations. Newspapers, magazines, specialists, doctrinaires, women's clubs, and school children, he said, signed memorials to Congress for the issuance for bonds for millions, to be used in all sorts of plans.

"Because I happen to be one Congressman who is in a position where my judgment is brought to bear on these subjects, some think I should be killed altogether."

He said that many people blamed him for opposition to the reforestation of the Appalachian range. There is a question, he said, as to whether the Nation had the police power to prevent the destruction of forests. He said that he thought that police power remained with the State. He declared that there was also a question as to the advisability of reforestation, and criticised magazines and newspapers for their articles on the waste of coal and timber.

The completion of the Panama Canal, he declared, might come when the Nation had reached 500,000,000 inhabitants.

Transcontinental railroads might be completed, he thought, when the Nation got to be 100,000,000 or 200,000,000. It would be a serious thing, he said, for the country to go ahead now and make mistakes.

The friends of conservation have long known of Speaker Cannon's opposition to the whole program looking toward reforestation, extension of waterways, forest conservation—in fact, the entire program of conservation of natural resources. The Speaker has not, however, heretofore put himself on record; his utterances before the Chicago Bankers' Club are the first in which he has openly declared opposition to the policy of taking care of the resources which we have left and making every effort to replace those resources which we have wasted.

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The following advertisements of Real Estate, Farm Lands, Timber Lands, etc., are the announcements of reliable firms and agencies. The Advertising Manager of CONSERVATION has investigated the announcements in all cases, and feels safe in recommending the advertisers to the readers of the magazine. The services of this department are free to all members of The American Forestry Association and subscribers to this magazine; advice in regard to the purchase of Real Estate advertised in our pages is gladly given, and our readers are urged to make the fullest use of our services in all matters pertaining to the purchase of advertised Real Estate, of whatever character, no matter where it is located.

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We are in a position to offer some exceedingly attractive **TIMBER** properties in the **SOUTH**, in **BRITISH COLUMBIA**, and on the **PACIFIC COAST.** Also a few going mill operation with ample timber supplies in South Carolina and Mississippi.

We furnish detailed reports of amount of **STUMPAGE** on each 2 1-2, 5 or 10 acre subdivision of each forty.

We employ expert **PACIFIC COAST CRUISERS** to check all estimates made on Western Timber.

We offer **HIGH CLASS** Timber Properties only, which have been placed in our hands for sale.

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